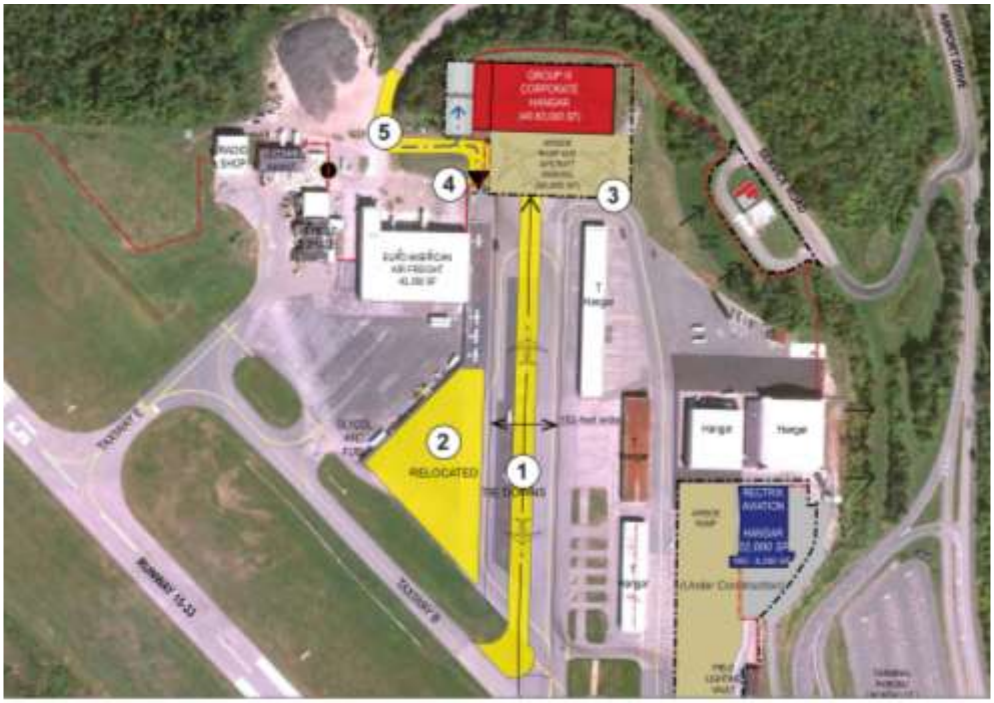
Draft Environmental Assessment



Proposed Hangar Development

Worcester Regional Airport (ORH)
Worcester, MA

Massachusetts Port Authority

September 12, 2014

This Environmental Assessment (EA) becomes a Federal document when evaluated, signed, and dated by the Responsible FAA official.

Responsible FAA Official

Date

Finding of No Significant Impact (FONSI)

Proposed Maintenance Hangar Facility
Worcester Regional Airport

Impacts and Mitigation

The impacts of the proposed project are not significant. All mitigation measures discussed in Section 4 of the September 2014 Environmental Assessment will be implemented.

Federal Finding

After careful and thorough consideration of the facts contained herein, the undersigned finds that the proposed Federal action is consistent with existing national environmental policies and objectives as set forth in section 101 of the NEPA and other applicable environmental requirements and will not significantly affect the quality of the human environment or otherwise include any condition requiring consultation pursuant to section 102(2)(C) of NEPA.

Approved: ______________________________ Date:__________
Manager, Environmental Program

Disapproved: ______________________________ Date:__________
Manager, Environmental Program

Draft Environmental Assessment

Proposed Hangar Development
Worcester Regional Airport (ORH)

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Project Description

1.1 Introduction

The Massachusetts Port Authority (Massport) is planning for construction of a new hangar/aircraft maintenance facility at the Worcester Regional Airport (ORH). The project would be completed in a single phase and would add one hangar facility of approximately 40,000 to 50,000 square feet (sf). A topographic locus map for the Project is provided as Figure 1.1. Figure 1.2 provides an aerial view of ORH with the major areas associated with the project.

The proposed hangar would be located at the north end of existing Taxiway Foxtrot (TW F) and adjacent to the primary airside access road. The new hangar facility would provide maintenance service, fueling, and shelter for general aviation (GA) and commercial aircraft up to Group III category aircraft. The hangar is expected to be constructed, owned and operated by a private Fixed Base Operator (FBO). An FBO is a private business that typically provides aeronautical services such as fueling, hangaring and apron parking, and aircraft maintenance.

The 2008 Worcester Regional Airport Master Plan Land Use Plan identified the area surrounding the proposed hangar as suitable for aviation related development, especially for support of general/corporate aviation activity at the Airport (attached as Figures 2.1 – 2.3).[1] Due to ongoing interests by third-party developers, Massport further refined the 2008 plan for this area in 2012 through preparation of a Corporate/General Aviation Master Plan (CGA Master Plan) to create a framework and provide guidelines for future development to occur in a cohesive manner and phased to maximize ORH's development flexibility and efficiency (see Appendix B). The key feature of the 2012 CGA Master Plan is that it creates one single-lane double-loaded taxilane with hangar/apron development on either side of the taxilane and provides landside access on both sides. The implementation of this full CGA Master Plan is dependent on relocation of the three existing T-hangar buildings.

While the overall CGA Master Plan outlines a range of future options for ORH apron areas, Massport believes that the single Maintenance Hangar concept that is evaluated in this EA is the most likely and the most cost-effective development in the foreseeable future.

Implementation of a hangar development plan requires that the Federal Aviation Administration (FAA) approve the new hangar and infrastructure improvements on the Airport's official Airport Layout Plan (ALP). FAA's approval of a change to the ALP is a federal action that requires compliance with the National Environmental Policy Act (NEPA). Under FAA's current directives that implement NEPA (FAA Orders 1050.1E and 5050.4B), new or replacement hangar facilities are typically reviewed in an Environmental Assessment (EA).

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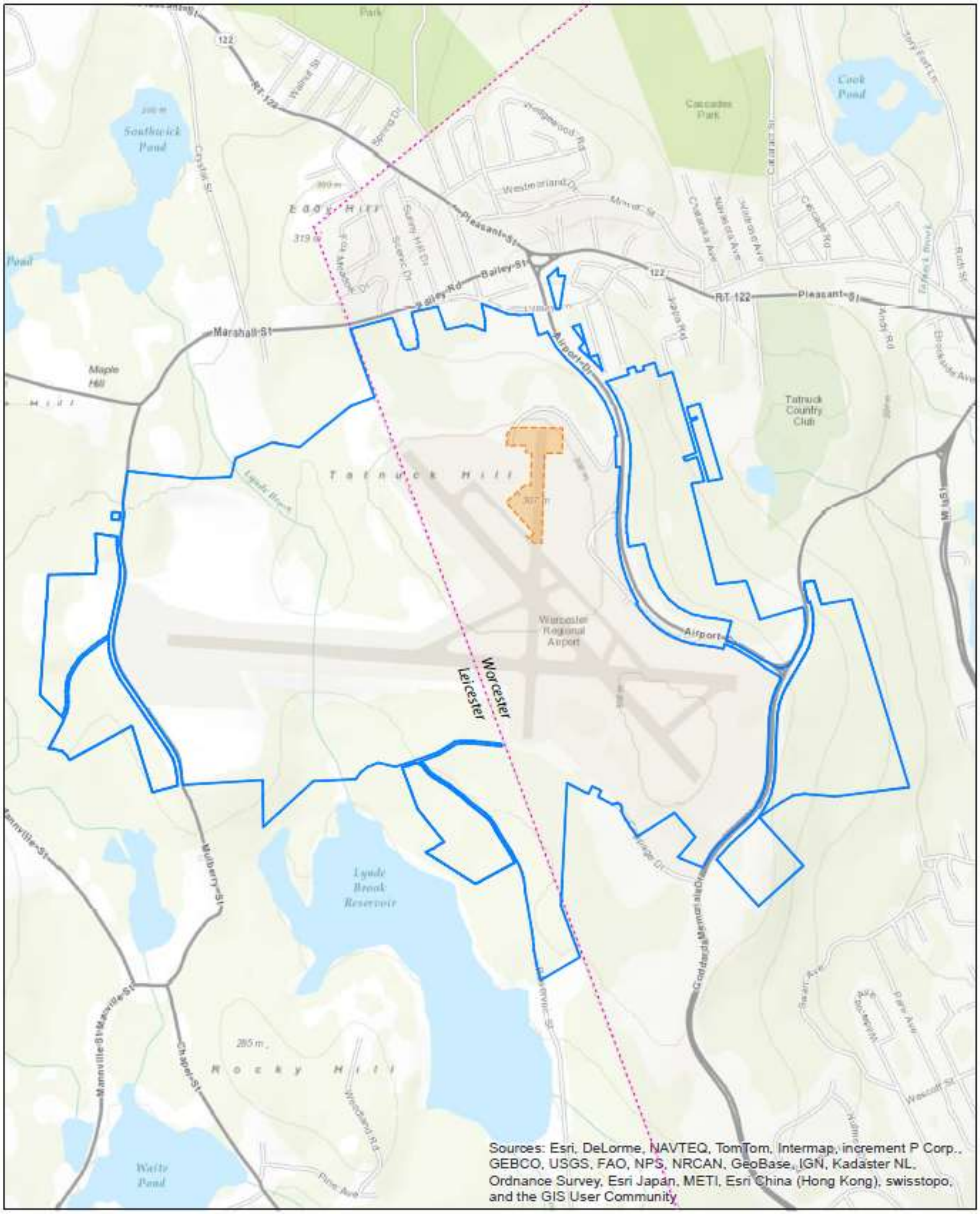
[1] 2008 Worcester Regional Airport Master Plan Land Use Plan, FAA, 2008.



Sources: Esri, DeLorme, NAVTEQ, TomTom, Intermap, increment P Corp., GEBCO, USGS, FAO, NPS, NRCAN, GeoBase, IGN, Kadaster NL, Ordnance Survey, Esri Japan, METI, Esri China (Hong Kong), swisstopo, and the GIS User Community

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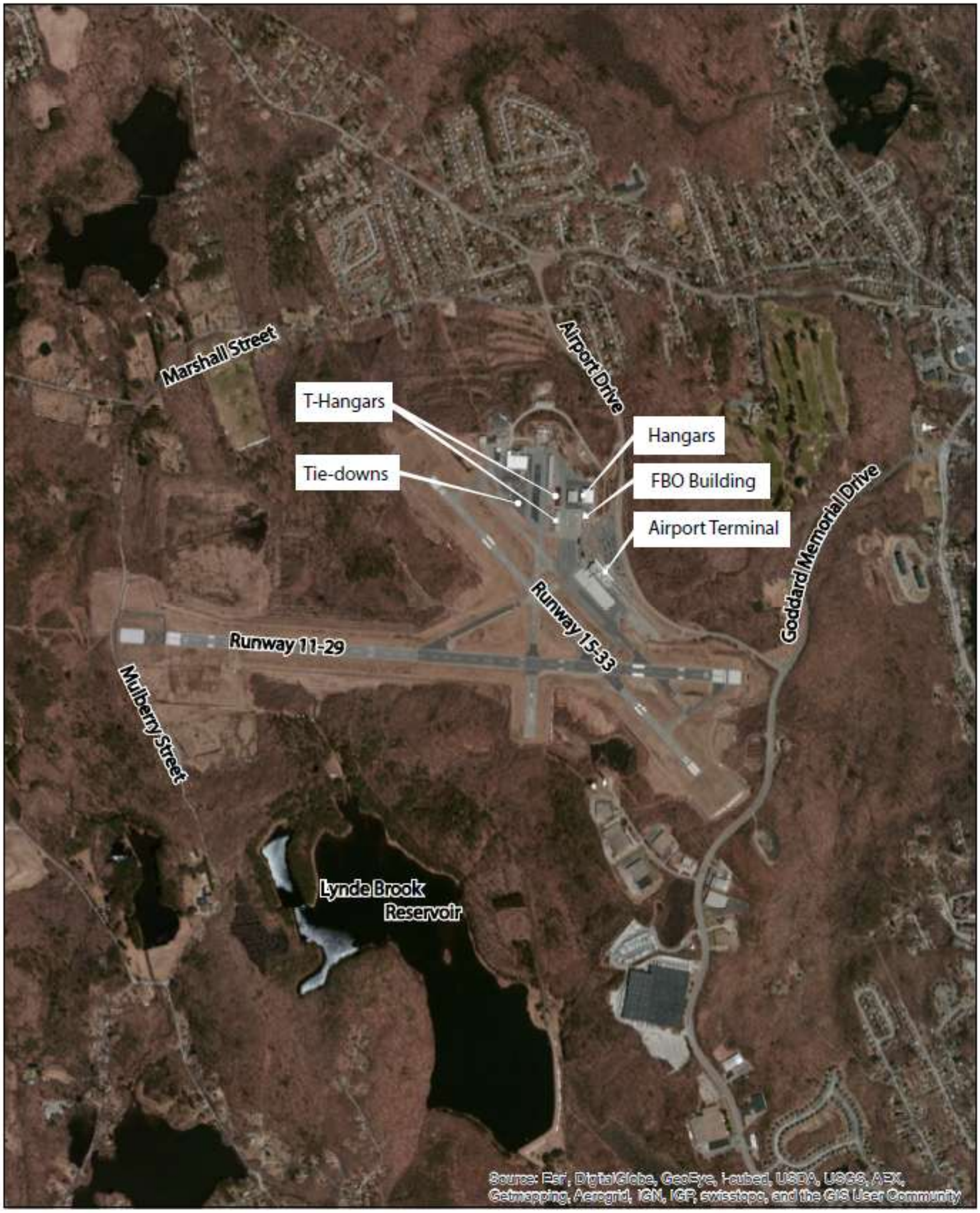
🟧 Project Area ○ Massport Property

Figure 1.1: Project Locus

Proposed Hangar Development, Worcester Regional Airport



Source: Esri, DigitalGlobe, GeoEye, i-cubed, USDA, USGS, AEX, Getmapping, Aerogrid, IGN, IGP, swisstopo, and the GIS User Community

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Figure 1.2: Existing Conditions

Proposed Hangar Development,Worcester Regional Airport

1.2 Purpose and Need

Project Purpose

The purpose of this project is to support the maintenance need of the existing and projected Group III commercial and general aviation/corporate aircraft fleet that would serve ORH over the 20-30 year planning horizon.

Context/Project Need

Worcester Regional Airport is one of the busier general aviation airports in New England with niche commercial service, and is critical to serve the needs of the region. Based on Massport operations data, total airport operations (takeoffs and landings) for 2012 were 44,600. Since November 2013, jetBlue started twice daily commercial service to Florida. jetBlue has served over 70,000 passengers since it started service in November 2013 with 100-seat Embraer 190, a Group III aircraft. A previous operator at ORH, Direct Air, served 107,000 passengers in 2011 with 830 operations of 150-seat Group III aircraft (737/A320) at 80% average load factor (passengers per available seats).There are presently approximately 100 aircraft based at the Airport, including a mix of single and multiengine piston aircraft, several cabin class turboprop aircraft and corporate jet aircraft. In addition to the limited commercial service, major users of the Airport are corporate aviation, flight schools, large air charter services and private pilots flying for business and recreational purposes.

General aviation forecasts prepared for recent planning initiatives all project a steady increase in general aviation and commercial activity at the Airport over the near and long-term planning horizon. The New England Regional Airport System Plan (the “NERASP”) provided the aviation forecasts that formed the basis of the 2008 Worcester Regional Airport Master Plan’s land use and business development plans. The NERASP Medium-growth Scenario indicated that the regional commercial airports would return to pre-9/11 passenger activity before 2020 and that ORH passenger activity level would grow to 284,000 by 2020. Similarly, the 2012 updates of the same plan forecasted growth to 189,000 passengers in the 2030 moderate growth scenario. With these projected increases in demand for service to Worcester Regional Airport over the 20-30 year horizon, the proposed new corporate/general aviation maintenance hangar will help to meet the needs of the growing airport.

Massport’s project goal is for development of a first-class maintenance hangar facility that would support the maintenance need of the existing and projected Group III commercial and general aviation/corporate aircraft fleet that would serve ORH over the 20-30 year planning horizon. The specific goals of the proposed single hangar development project include:

- Creating a new 40,000-50,000 SF Group III maintenance hangar
- Developing a 40,000-50,000 SF Apron for parking Aircraft and Ground Service Equipment
- Consolidating two Group I taxilanes into a single 1,200 foot long Group III Taxilane from the intersection of TW B and TW F
- Creating a dedicated area for landside employee parking area
- Relocating tiedowns impacted by the consolidated Taxilane
- Providing necessary utility infrastructure to the site.

1.3 Proposed Action

The proposed project would include construction of a new hangar of 40,000 to 50,000 square feet with the same size apron in front of the hangar. Some aircraft tie downs would be relocated in order to accommodate a new 1,200-foot long by 50-feet wide taxilane. The project would also include new utility infrastructure adjacent to the new hangar (including electrical, telecom, storm water, sewer, and gas), relocating an airside access gate, and upgrades to signage, lighting, sidewalks along a landside roadway. See Figure 1.4 for a map of the proposed Hangar and taxilane.

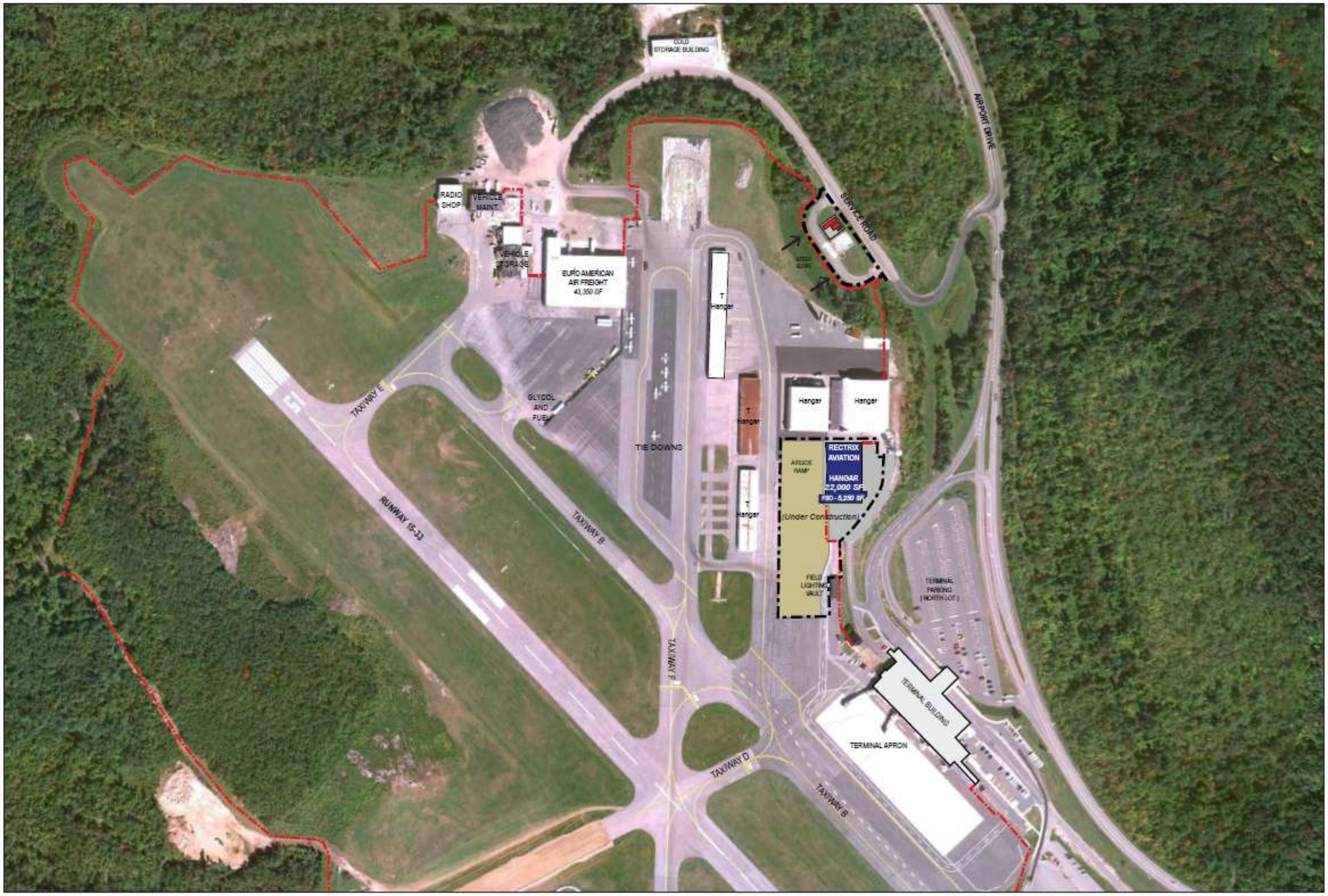
The entire development area has been in aviation uses for many years for storage and construction staging, though portions of the site are unpaved. The taxilane and relocated tiedowns are primarily located on existing paved surfaces. Approximately 9,100 sf of new pavement would be added to complete the southern end of the taxilane.

1.4 Required Approvals

At the federal level, the proposed changes would require a modification of the Airport's official Airport Layout Plan (ALP) and approval of those changes by the FAA. This EA is submitted in support of that review.

The Project is not subject to the Massachusetts Environmental Policy Act (MEPA) (301 CMR 11.00) because the proposed Project does not exceed any MEPA review thresholds.

Although there are no state or federal wetlands within the immediate project area, a small section of the proposed taxilane would potentially affect an area mapped by the MA Natural Heritage and Endangered Species Program (NHESP) as protected species habitat. As described below in section 4.3, coordination with NHESP will be required for implementation of that project element.



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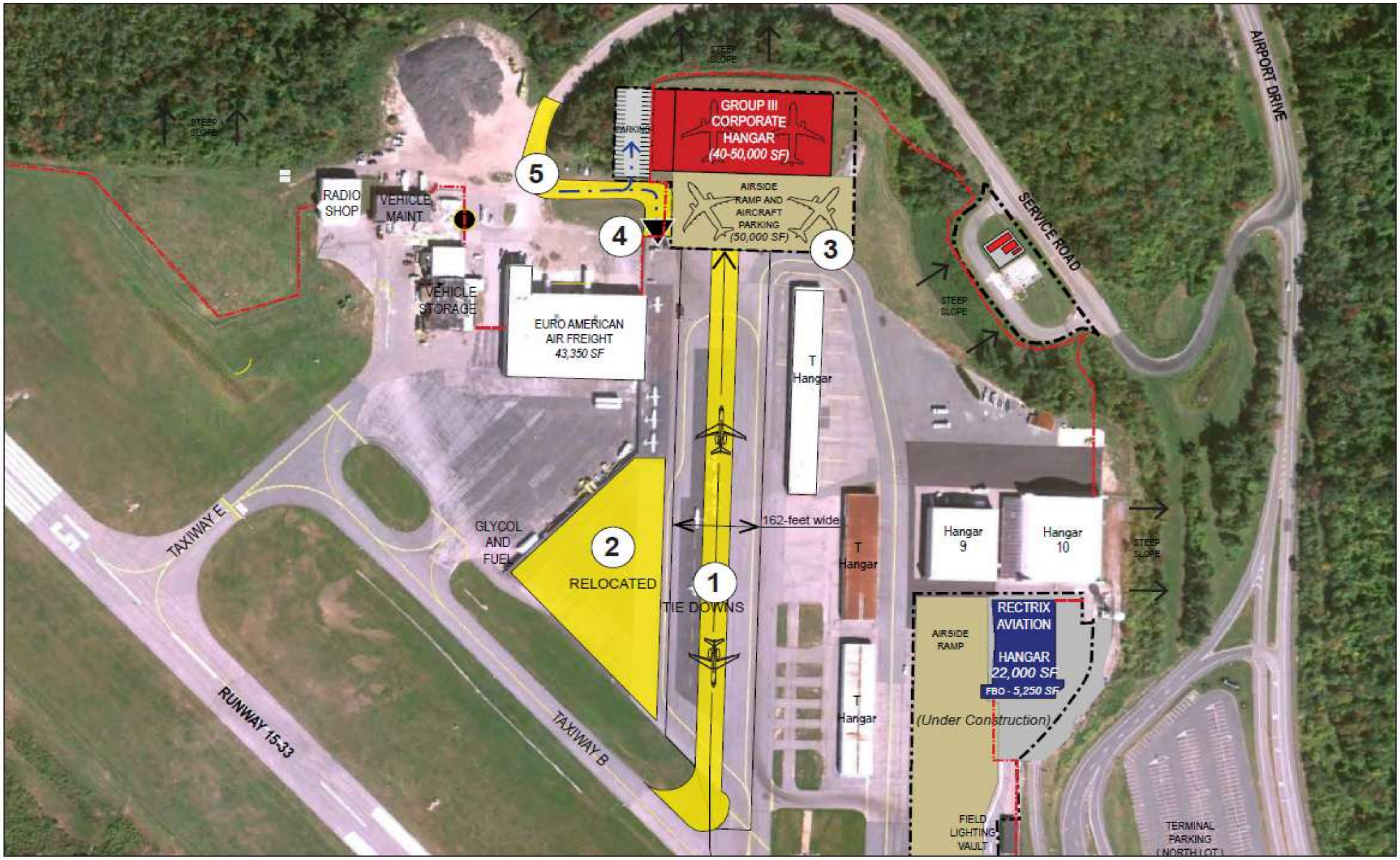
- 🟦 Hangar Under Construction
- 🟥 Fuel Farm
- – – Airside Fence

Figure 1.3: Project Area
Worcester Regional Airport



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🟥 Future Hangar Development
🟦 Hangar Under Construction
Upgraded Fuel Farm
-·- Airside Fence

① 1,200-foot long by 50-feet wide pavement for Group III taxilane
② Aircraft Tie Down Relocation
③ Utility infrastructure (electrical, telecom, storm water, sewer, gas, etc.)
④ Airside access gate relocation
⑤ Landside Roadway Upgrades (lighting, signage, trees, sidewalks, etc.)

Figure 1.4: Proposed Development Plan
Worcester Regional Airport

2

Alternatives

This section considers a reasonable range of alternatives considered by Massport and FAA. Section 3 describes existing conditions in the area of the proposed improvements and Section 4 assesses the environmental impact of proposed project. The alternatives are as follows:

1. No-Action/No-Build Alternative
2. Construct a new hangar as proposed by Massport (Proposed Action)
3. Construct a new hangar facility elsewhere on the airport

2.1 No-Action/No-Build Alternative

With the No-build alternative, Massport would maintain existing airfield infrastructure in its current configuration, complete construction of ongoing Rectrix Hangar and Fixed Based Operation Facility, pursue approvals and construct the proposed CAT III ILS/Taxiway improvements, and continue other ongoing maintenance and rehabilitation projects. No additional new facilities including hangars, Terminals, and other airfield or landside infrastructure improvements would be constructed.

No-build alternative is contrary to Massport's mission of making ORH once again a thriving economic engine for the Central Massachusetts Region by supporting developments that would create jobs and have direct, indirect and other economic impacts in the adjacent communities and the region.

Additionally, FAA's role is to provide for a safe and efficient National Airspace System. Working with airports in the conduct of planning studies, FAA identifies aviation needs to ensure that airports operate safely and efficiently. The proposed project would provide additional aircraft services at ORH, thereby contributing to a safe and efficient airport. To the extent that needs are not met at Worcester, the commercial and GA aircraft that would seek those services at another regional airport. This could result in additional ferrying operations when the aircraft normally operates at ORH. This would not be in the interest of an efficient National Airspace System.

FAA also has an interest in ensuring that airports not operate in a discriminatory fashion and this policy is reflected in grant assurances that Massport signs in order to obtain federal funding. These assurances are covered under the adaptive re-use alternative below. To avoid the potential for discrimination, FAA encourages competition in the form of new FBO entrants at airports.

For these reasons, Massport has determined that the No-Action/No-Build Alternative is not prudent.

2.2 Construct New Hangar as Proposed (Proposed Action)

As described in Section 1, the proposed project involves construction of a 40,000 - 50,000 square foot Group III Maintenance Hangar and maintenance facility on an existing developed area of the airport. The facility would service, maintain, and shelter primarily commercial and general aviation corporate aircraft. The project site is paved and/or previously developed and currently used for aviation activity.

In addition to the hangar, the proposed development would include a 50,000 square foot ramp area large enough to park two Group III aircraft, a 1,200-foot long taxi lane for Group III aircraft from intersection of Taxiway B/Taxiway F to the new ramp area, and a relocated tie-down area further to the west of the new taxilane. The proposed hangar facility would be required to meet LEED Silver certifications. These proposed developments are in addition to:

- the on-going CAT III ILS / Taxiway project, and
- the new 22,000 square foot Rectrix Aviation hangar and associated ramp area that is currently under construction. FAA issued a Finding of No Significant Impact (FONSI) for this project on August 3, 2013.

Development of the new maintenance hangar would accommodate growth and economic development at Worcester Regional Airport consistent with forecasts for growth of the airport. NERASP provided the aviation forecasts that formed the basis of the 2008 Worcester Regional Airport Master Plan's land use and business development plans. The NERASP Medium-growth Scenario indicated that the regional commercial airports would return to pre-9/11 passenger activity before 2020 and that ORH passenger activity level would grow to 284,000 by 2020. Similarly, an updated 2012 forecast indicated that passengers might grow to 189,000 by 2030.

This option allows for the projected growth of Worcester Regional Airport in a previously developed portion of the airport and as such, minimizes on-airport and environmental impacts.

2.3 Construct New Hangar Elsewhere On-Airport

The Worcester Regional Airport was originally constructed on Tatnuck Hill and Runway 11/29 was later extended by levelling two adjacent hilltops and using the excess fill to connect the two hills across Lynde Brook. As a result, outside of existing developed portions of the airport (runways, taxiways, terminal, parking, hangars, etc.), there is very limited level, drained developable area. Most of the airport property is not easily accessible from airside and landside and lacks the necessary infrastructure including water, sewer, drainage, electricity, telecommunications, etc., to support a maintenance hangar.

Within the airside, secured limits, essentially all non-developed surfaces are protected under state regulation as protected species habitat. Accordingly, reuse of previously developed and/or altered area is considered the highest priority for new or redevelopment. Furthermore, any new hangar must be able to be accessed from both landside and airside and therefore proximity to existing infrastructure is also important.

Several other locations for a new hangar were initially considered, but dismissed for the following reasons:

1. Greenfield areas of the airport were dismissed primarily due to protected habitat status, and because other previously-developed sites were available. The creation of new development areas outside the existing fence line would have required extensive grading

and/or fill and extended development closer to adjacent sensitive habitat and watershed of adjacent public water supply reservoirs. Where other sites are available, there is a desire to avoid new ground alteration that has the potential to adversely affect the watershed. The creation of new developable land at the airport would also significantly add to project costs associated with the cost of importing fill and extending access roadways and utilities to a new site.

2. Construction of a new hangar in the vicinity of the existing hangars north of the new Rectrix development at the eastern edge of the airport, as shown in the Corporate/General Aviation Master Plan in Appendix B, were also initially considered. However, development in this area is not currently feasible due to the need to demolish existing structures and relocation of other infrastructure.

3. Placement of a new hangar on existing paved surfaces adjacent to Taxiway F would penetrate Part 77 Transition Surfaces, require relocation of tie-downs and impact existing T-hangar operations. Other hangar locations slightly to the north in the same vicinity that avoid penetration of Part 77 surfaces would require demolition and relocation of existing T-hangars.

3

Affected Environment

3.1 Airport Environmental Setting

The Worcester Regional Airport encompasses approximately 1,300 acres within the City of Worcester and Town of Leicester. The airport has two runways: Runway 11/29 is 7,000-feet long by 150-feet wide and the secondary/cross-wind Runway 15/33 is 5,000-feet long by 100-feet wide. A supporting taxiway system provides access to and from the runways. Runway 11/29 has CAT I precision-instrument approaches to either runway end allowing for landing and takeoff operations during CAT I conditions and departures from Runway 11 during CAT III conditions down to 600 feet RVR. Runway 15/33 has a non-precision-instrument and visual approach.

The airport also has a six-gate commercial passenger terminal; four box hangars (for maintenance and storage of aircraft), 38 T-hangars (for small single-engine aircraft), and an airfield maintenance facility. The airport provides full-time Airport Rescue and Firefighting (ARFF) and Security. The airport has several active businesses including a general aviation facility, also known as a Fixed Based Operator (FBO), avionics and aircraft maintenance shops, a flight school and a truck-to-truck cargo facility with airfield access to runways and expansion area for potential air freight.

The Airport boundary lies within three sub-basins of the Blackstone River Watershed that includes Kettle Brook, Lynde Brook, and Tatnuck Brook. Both Kettle Brook and Lynde Brook are designated as Class A waters. Class A waters are classified by MDEP and include waters designated as a public water supply and are an excellent habitat for fish and other aquatic life. The portion of Tatnuck Brook south of the Holden Reservoir is designated as a Class B waters. Class B waters are designated as habitat for fish, other aquatic life and wildlife and are suitable for irrigation and other agricultural uses and may also be a source of drinking water with appropriate filtration.

The Airport property east of Mulberry Street lies within an area designated by the state as “Priority Habitat of Rare Species.” MassGIS data identifies several potential vernal pools near Runway 11/29 off Mulberry Street and between Runway 15/33 and Runway 11/29. MassGIS also identifies potential and certified pools west of and within an Airport parcel located northwest of Runway 11/29. Any proposed construction activities within designated areas of Priority Habitats of Rare Species and/or Estimated Habitats of Rare Wildlife and Certified Vernal Pools will require review by the Massachusetts Division of Fisheries and Wildlife – National Heritage and Endangered Species Program (“MDFW-NHESP”) to assess the effect of the project’s short-term and long-term impacts on the habitat supporting rare species.

There have been historical and recent releases of petroleum-related substances resulting in subsurface contamination on ORH property. Many of these releases have been listed with the MDEP as hazardous waste disposal sites, and all but two of these sites have been brought to regulatory closure. To close a site out, a demonstration that there is no significant risk to human and environmental receptors in the remaining levels of subsurface contamination must be made. Soil excavation and removal may be necessary to meet the required risk levels; however, it is acceptable to leave soils with lower contamination concentrations.

An aerial view of the airport showing existing conditions is provided as Figure 1-3.

3.2 Project Site Conditions

The project site is a 10.5 acre parcel at the northern end of the existing ramp and hangar area. The hangar would be sited on a level area of approximately three acres which has a primarily compacted gravel surface. This area has been used for many years for equipment and vehicle storage and construction staging. It is unvegetated and there is very little groundwater infiltration due to the soil compaction. The remainder of the proposed improvement areas are currently paved and used for aircraft parking and surface movement. A small portion of the proposed taxiway may require paving of an area of grassland that is mapped as protected habitat under the Massachusetts Endangered Species Act.

4

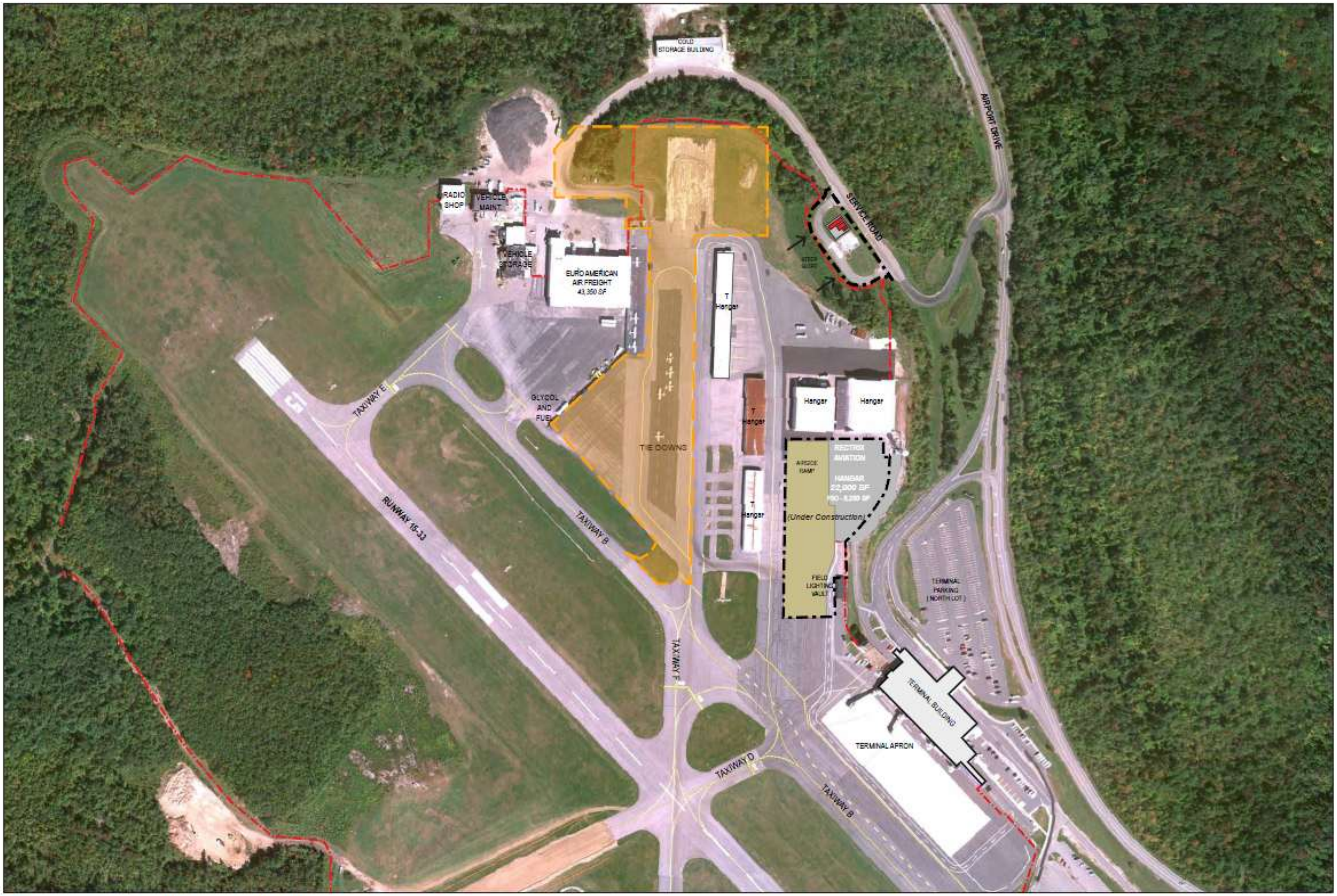
Environmental Consequences and Mitigation

4.1 Introduction

An Environmental Assessment prepared under the National Environmental Policy Act (NEPA) considers 23 areas of potential environmental impact. Some of these are not applicable to the Worcester Regional Airport, such as coastal barriers, coastal zone management, and wild and scenic rivers. Others are not applicable to this project because of the proposed action, construction of a hangar and associated infrastructure improvements, and its location at ORH. Other areas of potential environmental impact are expected to be insignificant because of the nature of the project. These include induced socioeconomic impacts such as effects on employment and airport revenue, energy supplies, natural resources, construction, and solid waste. The full list of potential environmental impacts is summarized in Table 4.1.

Environmental impacts with the potential for significant effect typically include the following areas: air quality; fish (not present), wildlife, and plants, hazardous materials, sustainable design, noise, transportation, water quality, wetlands, and cumulative impacts. These impacts were considered as documented below for each of the alternatives included in the alternatives analysis above. A map of the project area is also included in Figure 4.1.

Section 1.4 of this EA lists all federal and state environmental permits or approvals that may be required for project implementation. Additional approvals will be needed by Massport or the prospective tenant prior to implementing the proposed action. They include, as appropriate, approvals related to storage, dispensation, or use of fuel or other flammable or hazardous materials, a storm water pollution prevention plan, and spill prevention, containment and control plan. Based on Massport's experience of seeking federal and state approvals for similar projects, we believe that it is feasible for Massport or the applicant to obtain such permits.



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August 2014

0' 175' 350' 700'

🟧 Project Area *(approx. 10.5 acres)*

▨ Hangar Under Construction

🟥 Fuel Farm

—·— Airside Fence

4.1: Limits of Construction

Worcester Regional Airport

Table 4.1 Resource Category Applicability

Resource	Summary of Applicability
Air Quality	Air Quality is addressed in Section 4.7
Coastal Resources	Not present. This Project is not in the coastal zone.
Compatible Land Use	Not affected. The Project would not change any land uses and would have no impact on overall airport operations.
Farmlands	No farmlands are present in the Project area. The Project site is fully developed and there are no farmlands on or adjacent to the Project.
Fish, Wildlife, Plants	This is discussed in Section 4.2
Floodplains	Not present. The Flood Insurance Rate Map (FIRM) by the Federal Emergency Management Agency (FEMA) indicates that the entire site is located outside of any mapped floodplain areas.
Hazardous Materials and Solid Waste	Hazardous materials and solid waste are discussed in section 4.3.
Historical, Architectural, Archaeological, and Cultural Resources	Cultural resources are discussed in Section 4.4.
Light Emissions and Visual Impact	Not affected. The project would not significantly change the Airport's light emissions or the visual environment.
Natural Resources, Energy Supply, & Sustainability Design	Sustainable design is discussed in Section 4.5
Noise	Aircraft noise is addressed in Section 4.6
Section 4(f) and Section 6(f)	Not present. There are no Section 4(f) and Section 6(f) lands present on the site.
Socioeconomic Impacts, Environmental Justice	Not affected. The project would have no significant impact on airport operations or on off-airport properties. There would be no socioeconomic impacts. Jobs would be created as a result of facility construction and operation.
Surface Transportation	Not affected. This project would have no impact on surface transportation. Temporary traffic effects from construction are discussed in Section 4.8
Surface Water and Water Quality	Stormwater is addressed in Section 4.9.
Wetlands and Waterways	Waterways and wetlands are addressed in section 4.10.
Wild and Scenic Rivers	Not present. There are no Wild and Scenic Rivers located on the project site.

4.2 Fish, Wildlife and Plants

State-listed bird species inhabiting grassland habitat have been identified on the airport. The proposed Hangar project would have no adverse impact on federal-listed threatened or endangered species but would likely require alteration of a small grassland area that is protected under the Massachusetts Endangered Species Act. Please refer to Figure 4-2 for a map showing the locations of existing protected grasslands in the vicinity of the project. The project would eliminate approximately 102,000 square feet of pervious surface for the development of the 40,000 – 50,000 square foot hangar, parking area, and the consolidated taxilane. The project would displace approximately 9,100 square feet of grassland habitat in order to pave the southern end of the consolidated taxilane. The loss of this 9,100 square foot habitat area would likely be offset by removing an equivalent amount of pavement to make new habitat elsewhere on the airport. No impacts are expected from the elimination of the 102,000 square foot pervious area, since the area has been previously used for aviation activities and is likely heavily compacted.

The timing of the Hangar development project may unavoidably conflict with the breeding season because construction can most efficiently be completed during the warmer months. Massport will take necessary steps before breeding season to discourage birds from nesting in the project site, by mowing the grass to make it less appealing to birds. Bird surveys will also be completed during construction to ensure that nesting birds are present.

4.3 Hazardous Materials and Solid Waste

Construction is not expected to have any adverse impact on solid waste or hazardous materials. Construction waste will be recycled, as appropriate. A construction management plan will be implemented to avoid or minimize any temporary construction impacts. Any soil contamination encountered during construction would be handled in accordance with applicable state/federal regulations.

4.4 Historical and Cultural Resources

This EA has considered potential project impacts, under Section 106 of the National Historic Preservation Act (NHPA) of 1966, as amended, to properties on or eligible for inclusion in the National Register of Historic Places (NRHP). Based upon review of the MA Historical Commission's Massachusetts Cultural Resource Information System (**MACRIS**), there are no national or state Register listed properties or properties known to be eligible located within the footprint of the project.

The project site was selected because construction of a new hangar at this location would not require the removal or alteration of any existing airfield buildings. Operation of the new facility for aircraft hangaring and maintenance is consistent with the adjacent land uses and buildings, including Hangar 10 which is one of the older remaining hangars at ORH (see figure 1.4). In an August 6, 2013 letter to FAA regarding the adjacent Rectrix development, the MHC noted that Building 10 is a "Quonset hut type hangar structure dating from original airport construction during the 1940s". MHC stated that proposed demolition of Hangar 10 would require additional MHC coordination.

There are also no known prehistoric, historic or archaeologic period sites recorded within the general project area. During the development of the Airport's Vegetation Management Plan (VMP), a reconnaissance survey of the entire airport property was conducted in 2011 by Public

Archaeology Laboratory (PAL). Their report stated that the Airport has low archaeological sensitivity due to the presence of the airport and its affiliated maintenance activities.[2]

4.5 Sustainable Building Design

Massport supports sustainable design, energy conservation, and emission reduction for all development on Massport properties. Under Massport's sustainable design policy, all new development at Worcester Regional Airport must achieve Leadership in Energy and Environmental Design (LEED) certification and satisfy Massachusetts LEED Plus standards, while striving to achieve LEED Silver Certification.

4.6 Noise

Construction of a new maintenance hangar at the Worcester Regional Airport is unlikely to induce any significant increase in airport operations (approximately 4 take offs and 4 landings per week). Many of the commercial aircraft, corporate jets and other aircraft that would be served by the facility already operate at the Airport and growth in aviation activity at the airport should not be influenced by the existence of new maintenance hangar. The contribution of aviation infrastructure, such as runways, taxiways, apron areas, and hangars, contribute at most only incidental growth at an airport unless the airport is already capacity constrained. Capacity is not currently constrained at this Airport, however.

National and regional economic cycles have much more of an effect on aircraft operations than aviation infrastructure. Experience at Boston-Logan (new runway), Worcester (new terminal building), and elsewhere support this poor correlation between aviation infrastructure and induced demand.

Potential new sources of noise and emissions could include taxiing or occasional run-up operations by aircraft such as any of the Boeing 737 types; Airbus A-319s, -320s or -321s; Embraer 190s or 195s, or the Gulfstream 500. The Airbus 320-232 is one of the most likely aircraft to see increased use from the new operations, due to jetBlue operations. Activity to and from the new hangar area could be on the order of 2 to 4 additional aircraft per week. The nearest residence to the edge of the new apron area is approximately 1,000 feet away at the south end of Glen Ellen Road.

Massport hired Harris Miller Miller & Hanson, Inc. (HMMH) to analyze the air and noise impacts resulting from the proposed action. HMMH found that the Project "would not appreciably change the noise or air quality levels at Worcester Regional Airport. Based on the analysis of the potential effects of construction activities and aircraft operations on the current noise setting, no significant impacts would be anticipated." In terms of noise, HMMH used the Area Equivalent Method (AEM) to analyze noise impacts and found that new trips from the hangar and taxilane development result in "only a 2.9 percent increase of the DNL 65 dB contour if all aircraft using the proposed hangar are new to the airport. Based on FAA guidance, if the AEM screening analysis shows less than a 17 percent increase, it may be concluded that there are no significant impacts on a noise sensitive area and no further noise analysis is warranted."

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[2] PAL 2011 report.

4.7 Air Quality

Similarly, HMMH's analysis of air quality impacts from a new hangar indicates that the operation of a new hangar is unlikely to induce any increase in airport operations that would impact air quality at the Airport. The Project would have no significant air quality impact and will not violate local, State, Tribal, or Federal air quality standards under the Clean Air Act Amendments of 1990 and the new facility would not exceed National Ambient Air Quality Standards for criteria pollutants or the *de minimis* levels established under the General Conformity Rule of the federal Clean Air Act.

HMMH's air quality analysis indicates that the Project will conform to the SIP and will not cause or contribute to any new NAAQS violations or delay the timely attainment of a NAAQS. HMMH analyzed the possibility of increased use of the Airbus-320 as a result of increased jetBlue passenger capacity at ORH and found that the "net emission changes from activities associated with the proposed action are well below the *de minimis* levels for each pollutant." Since the net change in emissions under the project was found to be minimal, no additional analysis under the Clean Air Act or other guidelines was required. HMMH concluded that no mitigation for any noise or air quality impacts would be required

There would be temporary *de minimus* effects to air quality emissions during construction, including in emissions of some pollutants (e.g. PM10/PM2.5 and nitrogen oxides) due to the use of construction equipment powered by diesel fuel along with fugitive emissions from earth-moving equipment. However, emissions from construction activities are estimated to be temporary and are not expected to be a significant source of air quality emissions. Massport requires tenants to commit to the reduction of construction-related diesel emissions through the Clean Air Construction Initiative and all tenant projects must meet this commitment. Under the agreement, contractors are required to retrofit their heavy equipment with advanced pollution control devices during construction of all projects on Massport property. Contractor-owned equipment such as front-end loaders, backhoes, cranes and excavators would be retrofitted with oxidation catalysts and low particulate filters. These devices filter out and break down diesel emissions of hydrocarbons, particulate matters and carbon monoxide. [3]

Please refer to Appendix C for the full noise and air quality evaluation by HMMH.

4.8 Transportation

There may be temporary impacts on traffic as workers and heavy machinery access the project site. Police details can be used if needed to control the flow of traffic, although this is not anticipated to be necessary.

4.9 Water Quality

The Project would have no adverse water quality impacts. Runoff generated from impervious surfaces would be collected and managed in accordance with the MassDEP Stormwater Management Standards. This will improve runoff quality since there is limited control of stormwater in place at this time.

---

[3] HMMH Noise and Air Quality report (August 22, 2014).

4.10 Wetlands and Waterways

There are no federal or state wetland resource areas on or within 100 feet of the section of the airport where the FBO/hangars are proposed. The nearby wetlands – all outside of the project area—are shown in Figure 4-3.

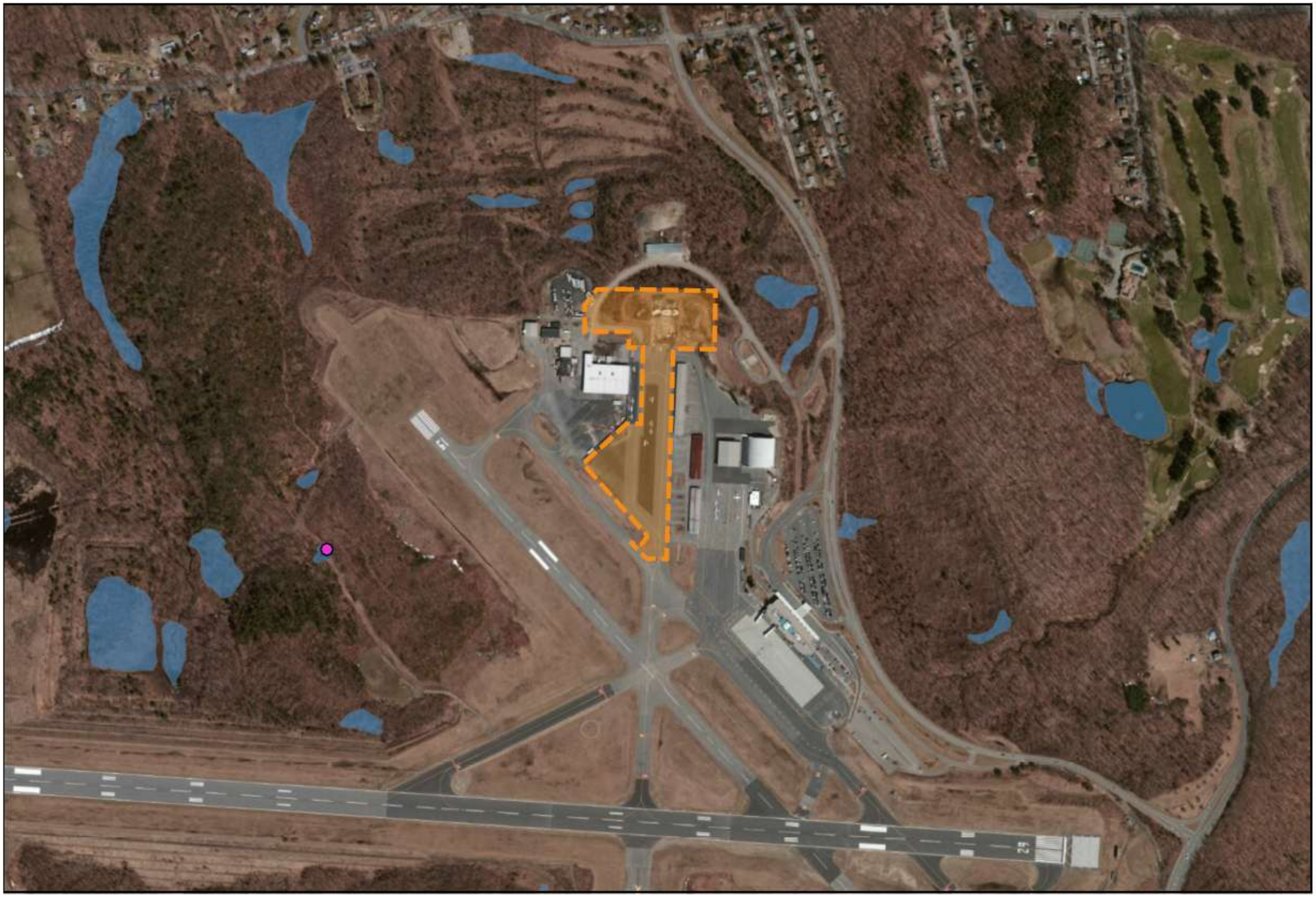
4.11 Cumulative Impacts

Cumulative impacts are impacts the proposed action would have on a particular resource due to past, present, and reasonably foreseeable actions within a defined time and geographical area. No adverse cumulative impacts are anticipated from the implementation of the Project due to the limited nature of potential impact to environmental resources. There are only two other projects likely to occur at ORH in the foreseeable future. First, Retrix has an ongoing two-phase project to construct a replacement Fixed-Base Operator (FBO) facility and replacement fuel farm and to potentially replace two hangars immediately adjacent to the FBO site with more efficient modern structures. Additionally, Massport is currently permitting the installation of a CAT III instrumentation system to increase the reliability of service into Worcester. There are no anticipated adverse cumulative impacts from these projects combined with the proposed hangar development.

Massport's Corporate and General Aviation (CGA) Master Plan has developed to a conceptual level, a plan for the highest and best use of airport land in order to take advantage of medium and long-term demand driven development opportunities compatible with general aviation. However, there are no current plans or schedule for additional hangar development at the airport and therefore additional phases of the CGA Master Plan are not reasonably foreseeable. A map of the reasonably foreseeable master plan for the Airport has been included in Appendix B. None of this additional construction is anticipated to be completed in the next 5 years.

4.12 Summary

The new hangar, taxilane and associated infrastructure are being proposed on an existing developed portion of the airfield. Reuse of existing developed airfield areas will significantly reduce the potential for adverse environmental impact, particularly as compared to an airport greenfield site. Stormwater management will be enhanced and potential habitat impacts from paving of approximately 9,100 square feet of grassland infield at the end of the taxilane can be fully offset by removing unused pavement elsewhere on airport to create a more functional alternative area of habitat. The construction of a new LEED certified hangar building will help to minimize environmental and energy use impacts from construction and operation of the new hangar. An analysis of potential air quality and noise impacts indicates no significant adverse effects of the project.



Massachusetts Port Authority
Economic Planning and Development
May 2014

Figure 4.3: Water Resources

Proposed Hangar Development,Worcester Regional Airport

5

Distribution List

Philip Guerin
Director of Environmental Systems
Worcester Division of Public Works & Parks
20 East Worcester Street
Worcester, MA 01604

Worcester Conservation Commission
455 Main Street
Worcester, MA 01608

Worcester Historical Commission
455 Main Street
Worcester, MA 01608

Worcester Fire Department
141 Grove Street
Worcester, MA 01605

Massachusetts Historical Commission
220 Morrissey Boulevard
Boston, MA 02125

Massachusetts Department of
Environmental Protection
Central Regional Office
627 Main Street
Worcester, MA 01608

Ms. Oriola Koci
12 Brownell Circle
Worcester, MA 01602

Mr. Chris Kosak
15 Alexander Rd.
Worcester, MA 01606

Mr. Michael Amir
48 Hickory Drive
Worcester, MA 01609

Mr. George Allen
69 Elmwood Street
Millbury, MA 01527

Mr. Doug Belanger
13 Harberton Drive
Leicester, MA 01524

Ms. Dianna Provencher
P.O. Box 255
Leicester, MA 01524

Mr. Jay Finlay
14 North Bend Road
Worcester, MA 01609

Ms. Beth Proko
2 Holden Street
Worcester, MA 01609

Mr. Michael Chambers
c/o Jetblue
375 Airport Dr.
Worcester, MA 01602

Worcester Public Library
3 Salem Street
Worcester, MA 01608

Natural Heritage & Endangered
Species Program
MA Division of Fisheries & Wildlife
100 Hartwell St, Suite 230
West Boylston, MA 01583

Worcester City Council
City Hall Room 206
455 Main Street
Worcester, MA 01608

Worcester Planning Board
Div. of Planning & Regulatory Services
City Hall Room 404
455 Main Street
Worcester, MA 01608

Worcester Regional Chamber of Commerce
Attn: Timothy P. Murray
446 Main Street, Suite 200
Worcester, MA 01608

Leicester Board of Selectmen
3 Washburn Square
Leicester, MA 01524

Leicester Planning Board
3 Washburn Square
Leicester, MA 01524

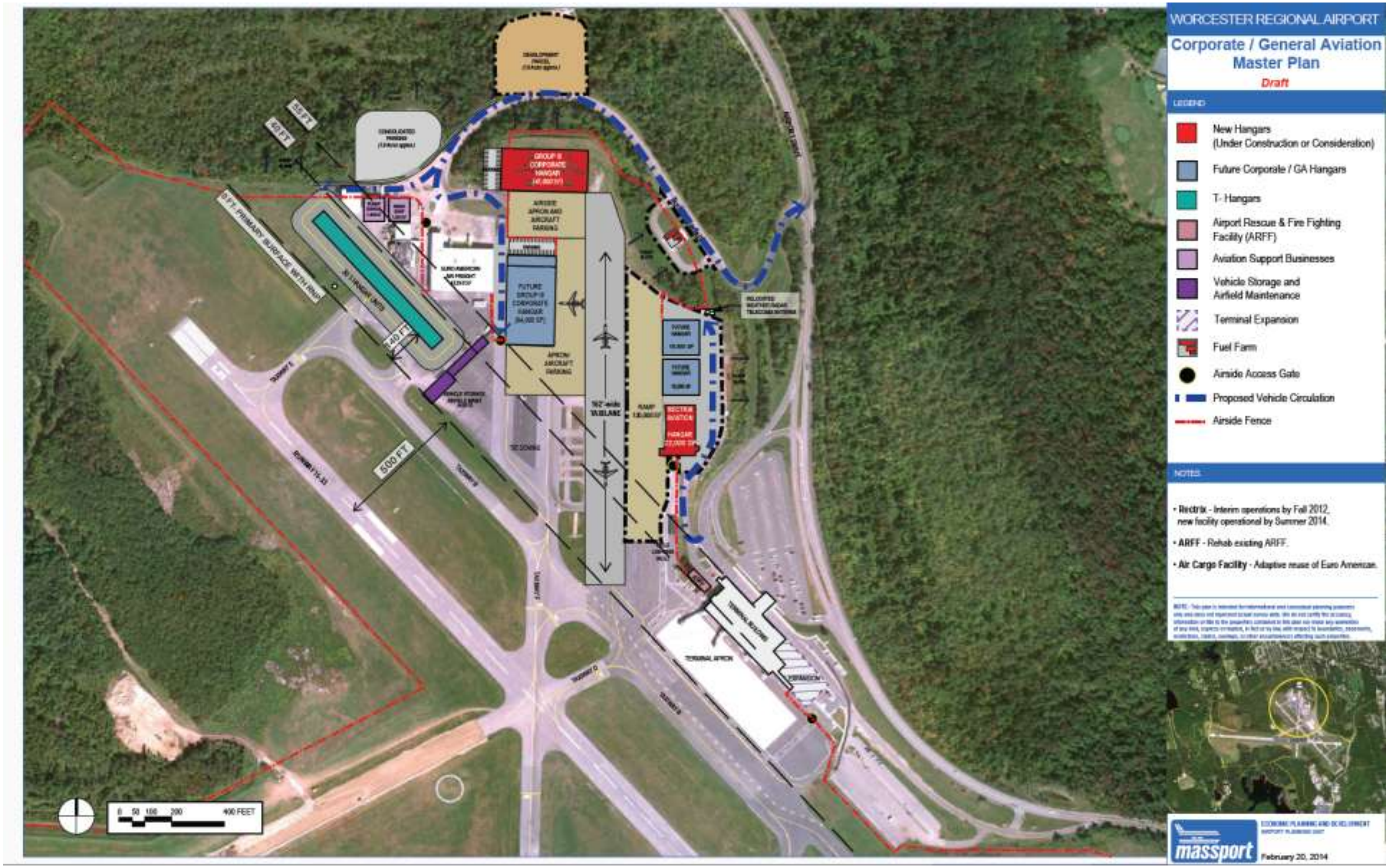
APPENDIX A

FAA RESPONSES TO CONSULTING PARTY AND PUBLIC COMMENTS

In drafting this Environmental Assessment (EA)**,** FAA written comments submitted on the draft EA. FAA received xx e-mails or letters in response to the drafts submitted for review to the consulting parties and the public at large. This appendix contains the correspondence, arranged in chronological order, followed by FAA's responses.

(THIS SECTION TO BE COMPLETED FOLLOWING PUBLIC REVIEW)

APPENDIX B: Corporate/General Aviation Master Plan


WORCESTER REGIONAL AIRPORT
Corporate / General Aviation Master Plan
Draft
LEGEND
🟥 New Hangars (Under Construction or Consideration)
▨ Future Corporate / GA Hangars
▨ T- Hangars
▨ Airport Rescue & Fire Fighting Facility (ARFF)
▨ Aviation Support Businesses
▨ Vehicle Storage and Airfield Maintenance
▨ Terminal Expansion
▨ Fuel Farm
● Airside Access Gate
Proposed Vehicle Circulation
Airside Fence
NOTES
55 FT
40 FT
0 FT - PRIMARY SURFACE WITH RWD
40 FT
500 FT
GROUP II CORPORATE HANGAR
AIRSIDE APRON AND AIRCRAFT PARKING
FUTURE GROUP II CORPORATE HANGAR (84,000 SF)
APRON/ AIRCRAFT PARKING
FUTURE HANGAR
RECTRIX AVIATION HANGAR
RELOCATED WEATHER RADAR TELECOMM ANTENNA
TERMINAL APRON
EXPANSION
0 50 100 200 400 FEET
massport
February 20, 2014

- **Rectrix** - Interim operations by Fall 2012, new facility operational by Summer 2014.
- **ARFF** - Rehab existing ARFF.
- **Air Cargo Facility** - Adaptive reuse of Euro American.

APPENDIX C: HMMH Noise and Air Quality Report

HARRIS MILLER MILLER & HANSON INC.
77 South Bedford Street
Burlington, MA 01803
T 781.229.0707
F 781.229.7939
www.hmmh.com

TECHNICAL MEMORANDUM

Subject: Worcester Regional Airport - Hangar Development Noise and Air Quality Analysis

Prepared for: Stewart Dalzell, Deputy Director
Shailesh Gongal, C.M., Senior Airport Planner
Massport, Economic Planning and Development Department
Logan International Airport,
1 Harborside Drive,
Boston, MA 02128

Prepared by: Robert C. Mentzer Jr., Phil DeVita, Kurt M. Hellauer, HMMH

Date: August 22, 2014

Reference: HMMH Project Number 304090.006

1. INTRODUCTION AND TASK DESCRIPTION

The Massachusetts Port Authority (Massport), operator of the Worcester Regional Airport (ORH) requested that Harris Miller Miller & Hanson Inc. (HMMH) perform an analysis of potential noise and air quality impacts that would arise from implementation of Phase I of the Worcester Regional Airport Corporate/General Aviation Master Plan (the “CGA Master Plan”), specifically construction of a maintenance hangar and ancillary facilities on the north side of the airfield (Figure 1). Massport indicates that there are no current plans or schedule for additional hangar development at the airport and therefore additional phases of the CGA Master Plan are not reasonably foreseeable. Accordingly, this analysis only addresses the current development proposal.

The CGA Master Plan is based on the general recommendations of the 2008 Worcester Regional Airport Master Plan Study (the “2008 Master Plan”) and developed to a conceptual plan level to provide a framework for the highest and best use of airport land and to take advantage of medium and long-term demand driven development opportunities compatible with general aviation. The 2008 Master Plan was funded by the Federal Aviation Administration (the “FAA”) and the Massachusetts Aeronautics Commission (the “MAC”) and was prepared in coordination with the FAA, MAC, the City of Worcester and surrounding towns and communities.

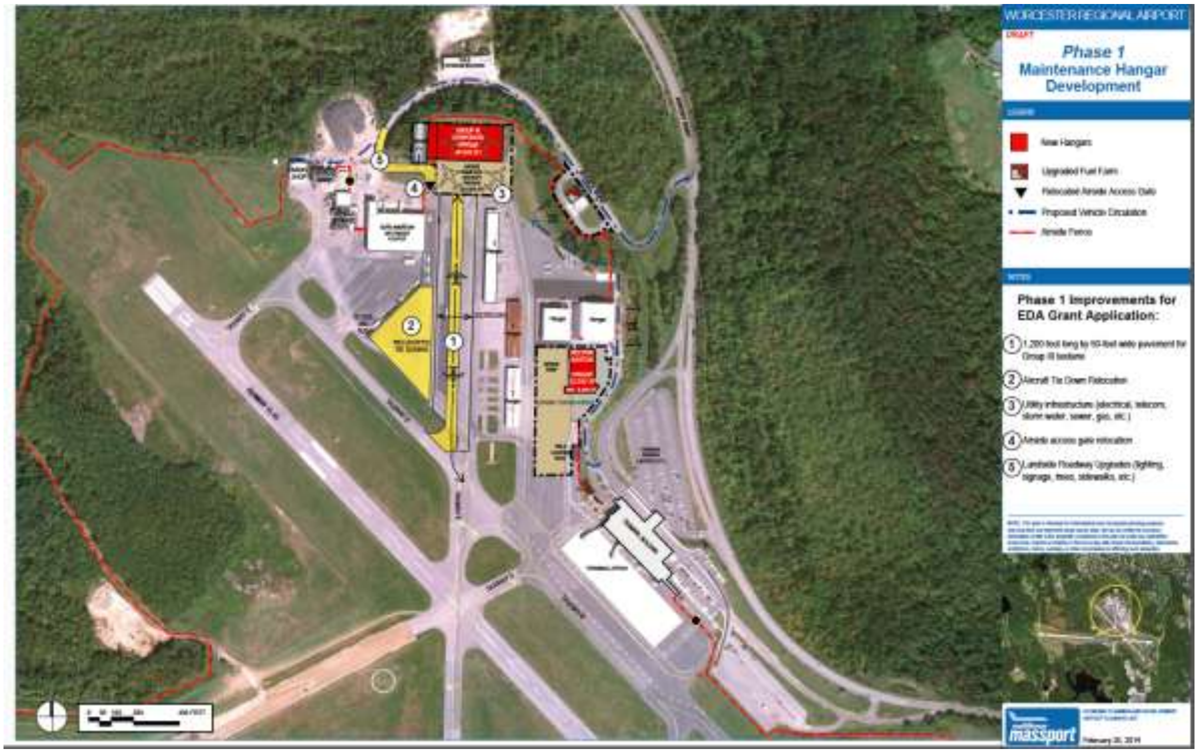
This memorandum provides the results of our analyses based on the facility sizes and locations (footprints) as shown on Figure 1 which is a graphic extracted from the CGA Master Plan prepared by Massport.

Section 2 presents our primary conclusions concerning the project with respect to potential changes in the noise and air quality setting, Section 3 provides a brief description of the elements of the project that are assumed to comprise the Proposed Action, and the remaining sections provide draft language for use by Massport in preparing an Environmental Assessment under the National Environmental Policy Act of 1970 (NEPA).

2. CONCLUSION AND RECOMMENDATIONS

The Proposed Action would not appreciably change the noise or air quality levels at Worcester Regional Airport. Based on the analysis of the potential effects of construction activities and aircraft operations on the current noise setting, no significant impacts would be anticipated. A Federal Aviation Administration (FAA) Area Equivalent Method (AEM) screening analysis was conducted for noise and results in only a 1.2 percent increase of the DNL 65 dB contour if all aircraft using the proposed hangar are new to the airport. Based on FAA guidance, if the AEM screening analysis shows less than a 17 percent increase, it may be concluded that there are no significant impacts on a noise sensitive area and no further noise analysis is warranted. The FAA Emissions and Dispersion Modeling System (EDMS) air quality modeling provides a similar result with no impact on air quality. Therefore mitigation for any noise or air quality impacts would not be required.

Figure 1: Worcester Regional Airport Phase 1 - Maintenance Hangar Development (Draft)



Source: Massport (February 20, 2014)

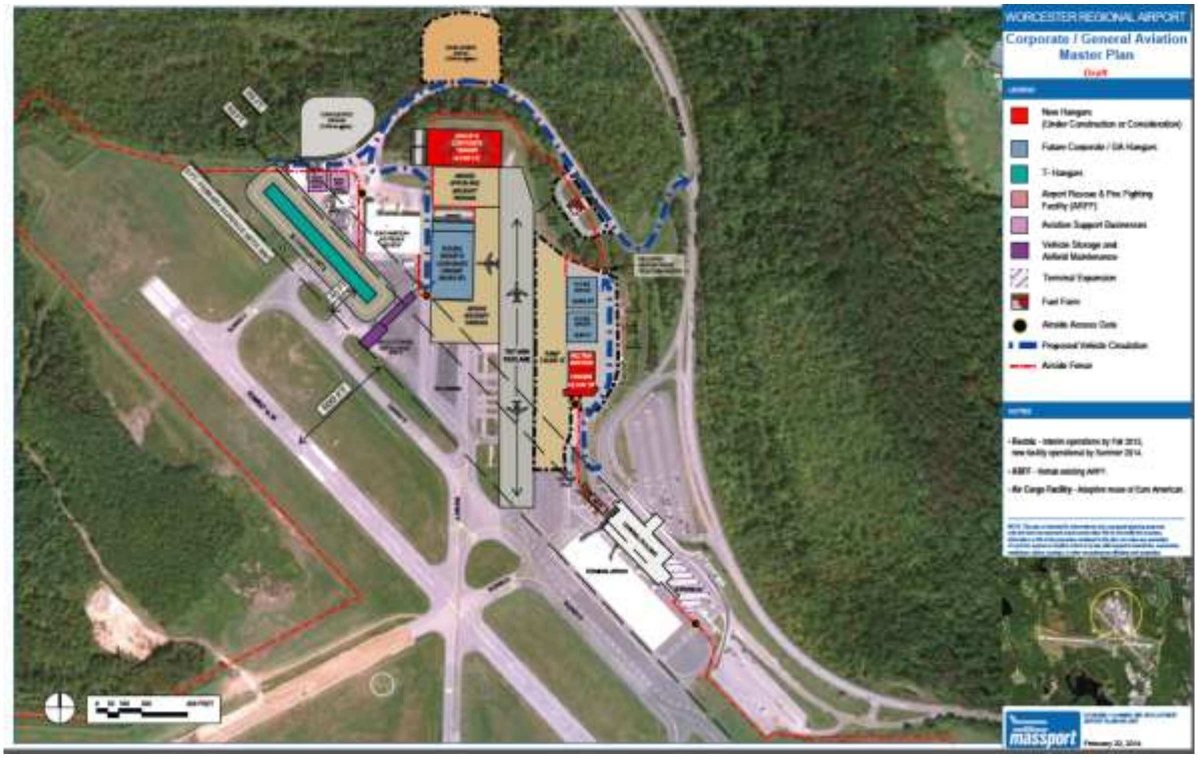
3. SUMMARY OF ALTERNATIVES EVALUATED IN DETAIL

3.1 Proposed Action

Under the Proposed Action, the improvements contemplated in the CGA Master Plan would be phased. This technical memorandum examines the potential effects on the noise environment arising from the construction projects identified for Phase I. As noted above, Massport has no current plans or schedule for future phases of the Master Plan. In general, the Phase I projects described below would be located at the end of a decommissioned runway north of Taxiway F and the T-hangar general aviation facility on the airfield (Figure 1). Although portions of this area are paved and have been used for various airport activities, this area is generally undeveloped at this time.

The Phase I improvements shown in Figure 1 are part of a larger conceptual plan for accommodating and servicing corporate and general aviation aircraft at Worcester Regional Airport outlined in the CGA Master Plan. Shown in Figure 2, the CGA Master Plan is essentially a spatial and land use planning exercise designed to prepare the airport to be able to take advantage of medium and long-term demand driven general aviation compatible development opportunities as recommended by the 2008 Master Plan.

Figure 2: Worcester Regional Airport Corporate/General Aviation Master Plan (Draft)


WORCESTER REGIONAL AIRPORT
Corporate / General Aviation Master Plan
Draft
New Hangars (Under Construction or Consideration)
Future Corporate / GA Hangars
T-Hangars
Airport Rescue & Fire Fighting Facility (ARFF)
Aviation Support Businesses
Vehicle Storage and Airfield Maintenance
Terminal Expansion
Fuel Farm
Airside Access Gate
Proposed Vehicle Circulation
Airside Fence
massport

Source: Massport (February 20, 2014)

Massport indicates that there are no current plans or schedule for additional hangar development as shown in Figure 2 at the airport and therefore additional phases of the CGA Master Plan are not reasonably foreseeable. Accordingly, this analysis only addresses the current development proposal shown in Figure 1

Figure 3 below displays the near term (5-10 years) development plan for medium growth from the 2008 Master Plan and Figure 4 displays the long term (10-20 years) development plan for medium growth from the 2008 Master Plan. As shown, the 2008 Master Plan had recommended that the area north of the Terminal Building was suitable for supporting corporate/general aviation development.

Figure 3: 2008 Master Plan - Development Plan: Medium Growth - Near Term (5-10 years)

Final Report

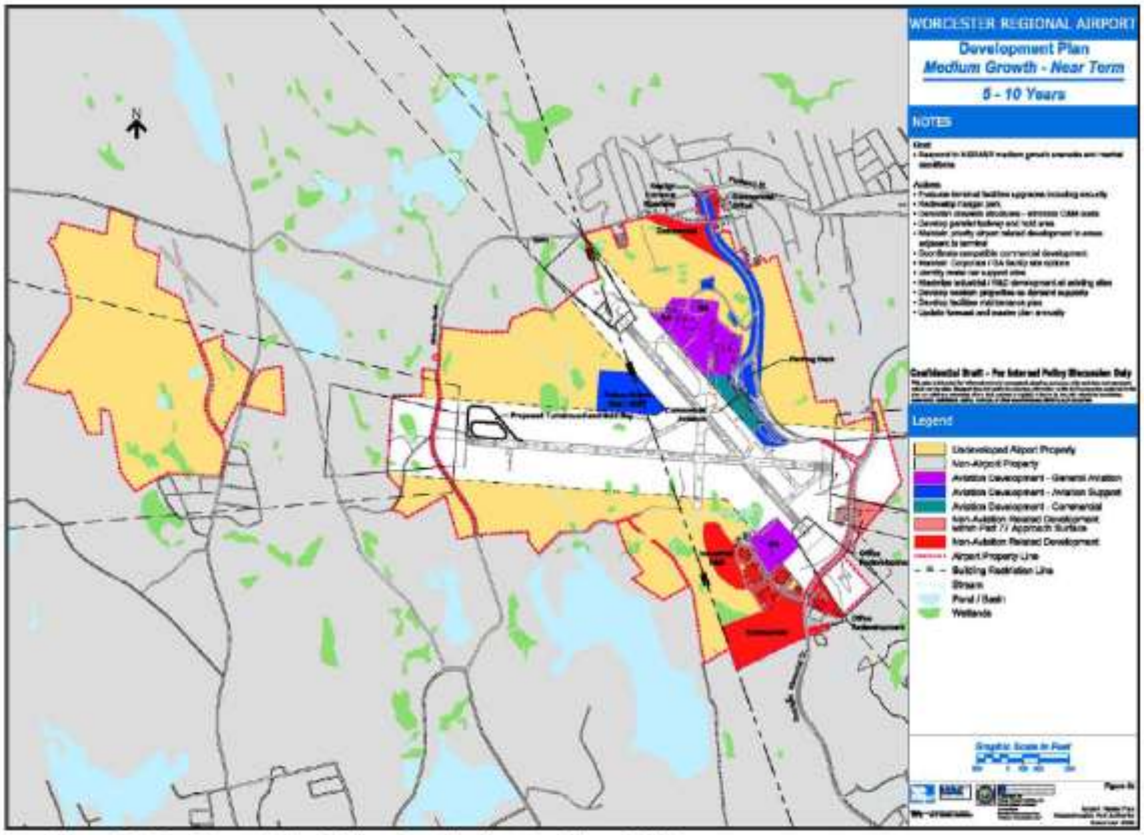

N
WORCESTER REGIONAL AIRPORT
Development Plan
Medium Growth - Near Term
5 - 10 Years
NOTES
Legend
Undeveloped Airport Property
Non-Airport Property
Aviation Development - General Aviation
Aviation Development - Aviation Support
Aviation Development - Commercial
Non-Aviation Related Development within Part 77 Approach Surface
Non-Aviation Related Development
Airport Property Line
Building Restriction Line
Stream
Pond / Basin
Wetlands
Graphic Scale in Feet

Figure E- 2: Development Plan; Medium Growth – Near-term Plan: 5-10 Years

12 *Worcester Regional Airport Master Plan Study March 2008 Executive Summary*

Source: Worcester Regional Airport Master Plan Study – March 2008

Figure 4: 2008 Master Plan - Development Plan: Medium Growth - Long Term (10-20 years)

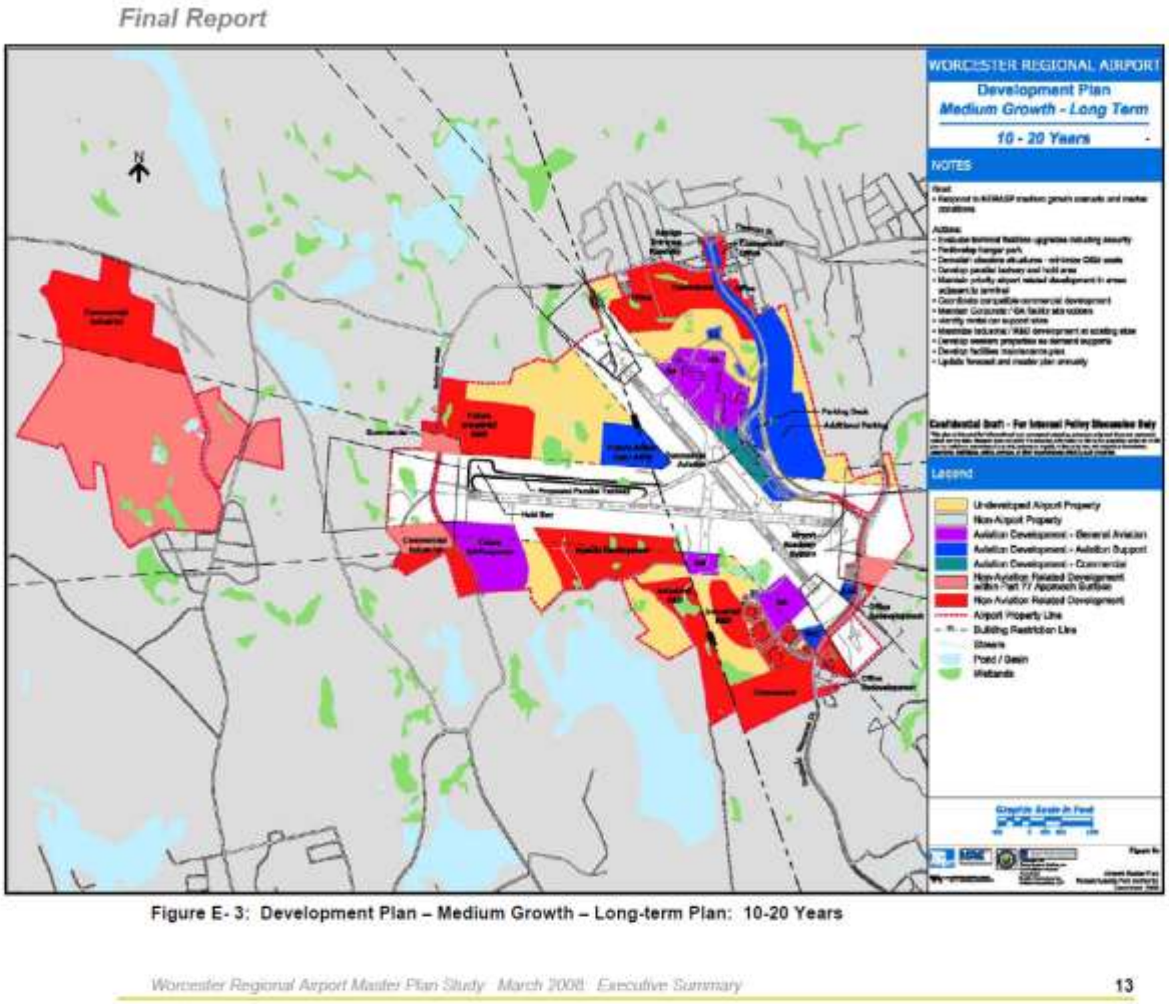

Final Report
WORCESTER REGIONAL AIRPORT
Development Plan
Medium Growth - Long Term
10 - 20 Years
NOTES
Confidential Draft - For Internal Policy Discussion Only
Legend
Undeveloped Airport Property
Non-Airport Property
Aviation Development - General Aviation
Aviation Development - Aviation Support
Aviation Development - Commercial
Non-Aviation Related Development within Part 77 Approach Surface
Non-Aviation Related Development
Airport Property Line
Building Restriction Line
Streams
Pond / Basin
Wetlands
Graphic Scale in Feet
N

Figure E- 3: Development Plan – Medium Growth – Long-term Plan: 10-20 Years

Worcester Regional Airport Master Plan Study March 2008 Executive Summary 13

Source: Worcester Regional Airport Master Plan Study – March 2008

As shown in Figure 1, the primary elements of the Proposed Action include:

- New Maintenance Hangar including related office/employee space (40 - 50,000 SF)
- Relocated/extended taxi lane
- Infrastructure improvements (electrical, telecom, storm water, sewer, gas, etc..)
- Landside access improvements
- Relocation of existing aircraft tie-down area

If constructed, potential new activities occurring in this portion of the airfield would be aircraft maintenance operations occurring within a new hangar. The anticipated aircraft undergoing such maintenance would vary but may include aircraft ranging in size from the Boeing 737 types (twin engine, narrow body); Airbus A-319s, -320s or -321s types (twin engine, narrow body); Embraer 190s or 195s (twin engine, regional jet), or the Gulfstream 500 (twin engine, business jet).

In addition, taxiing to and from the hangar or occasional maintenance run-up operations by these same aircraft types may occur on this portion of the airfield. Similar activity from corporate jets and non-jet aircraft occurs south of this area near the Rectrix Aviation Fixed Based Operator (FBO) facility. The frequency of aircraft movement and operational activities (taxiing and engine run-up operations) to, from, or in the vicinity of the proposed hangar area are estimated to be at a rate of 2 to 4 additional aircraft per week, each of those possibly leaving and returning to the hangar area once or twice during their required maintenance stay.

The Proposed Action is separate from and in addition to the on-going Category III Instrument Landing System (CAT III ILS)/Taxiway project and is also in addition to a new 22,000 square foot Rectrix Aviation hangar and associated ramp area that is currently under construction. Massport is currently preparing NEPA documentation for the CAT III ILS and Taxiway project and previously completed NEPA documentation for the new Rectrix Aviation hangar. The Proposed Action has separate utility from and is not connected or related to those two actions, apart from their presence and inclusion in the 2008 Master Plan.

To summarize, the Proposed Action depicted in Figure 1 would consist of:

- A 40 - 50,000 SF Hangar
- Construction of 1,200-foot long by 50-foot wide pavement for Group III taxi-lane (most of which is paved and already used for aircraft movements)
- Relocation of existing aircraft tie-down to an unused paved area
- Airside (Vehicular) Access Gate Relocation
- Landside Roadway Upgrades
- Associated Utility Infrastructure Installation/Modification

3.2 No Action

Under the No Action alternative, none of these projects contemplated in Phase 1 would be constructed and the Proposed Action would not be implemented. However, the ongoing construction of the CAT III ILS/Taxiway project and the Rectrix hangar and ramp space would continue.

4. AFFECTED ENVIRONMENT (EXISTING CONDITIONS)

4.1 Noise

The most recent noise contours prepared for Worcester Regional Airport were developed for the Worcester Regional Airport Category II/III Feasibility Study in 2003 (Figure 3). Although this information is dated, it does provide general information about the existing noise levels on and in the vicinity of the airfield. The contours developed for that study were developed using the FAA Integrated Noise Model (INM) Version 6.0c for the 2002 calendar year (CY). The operations modeled for CY2002 were 53,504 which are significantly higher operations than reported over the prior 12 months during 2013/2014 used for this analysis (31,235 annual operations)[1]. The 2002 contours show that the project site on the north side of the airfield as well as adjacent and nearby properties in this general area are well below the annual average 65 decibel (dB) day-night sound levels (DNL). The land use within the DNL 65 dB contour is primarily on airport property or undeveloped land.

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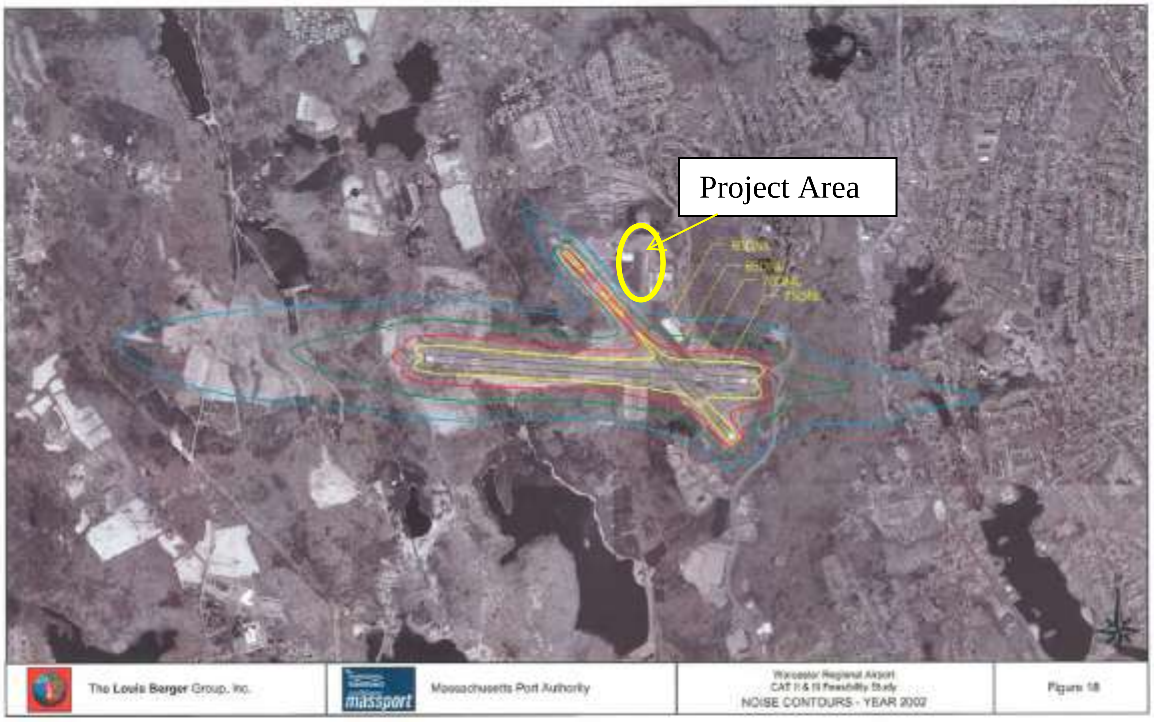
[1] FAA OPSNET data for June 2013 – May 2014

Figure 5: 2002 Day Night Average Sound Level Contours for Worcester Regional Airport


Project Area
The Louis Berger Group, Inc.
massport
Massachusetts Port Authority
Worcester Regional Airport
CAT II & III Feasibility Study
NOISE CONTOURS - YEAR 2002
Figure 18

Source: Worcester Regional CAT II & III Feasibility Study

4.2 Air Quality

Pursuant to the Federal Clean Air Act of 1970, as amended (CAA), the US Environmental Protection Agency (EPA) established National Ambient Air Quality Standards (NAAQS) for major pollutants, called "criteria pollutants." Currently there are six criteria pollutants: ozone (O3), carbon monoxide (CO), nitrogen dioxide (NO2), sulfur dioxide (SO2), particulate matter, and lead (Pb). Particulate matter (PM) includes particles with a diameter less than 10 micrometers (PM10) and with a diameter less than 2.5 micrometers (PM2.5).

The standards apply to the concentration of a pollutant in outdoor ambient air. If the air quality in a geographic area meets or is better than the national standard, it is called an attainment/unclassifiable area. Areas that do not meet the national standard are called non-attainment areas. Once a non-attainment area meets the standards and additional re-designation requirements in the CAA, the EPA re-designates the area as a "maintenance area."

Each state is required to draft a state implementation plan (SIP) to further improve the air quality in non-attainment areas and to maintain the air quality in attainment and maintenance areas. The plan outlines the measures that the state will take in order to improve air quality.

Table 1 presents the EPA-designated attainment status for Worcester area where ORH is situated. The EPA has classified the Eastern Massachusetts (Boston-Lawrence-Worcester) as non-attainment for the 1997 eight-hour ozone standard, and Worcester County maintenance area for CO, and attainment area for the remaining pollutants. Table 1 also presents the corresponding de minimis levels associated with each non-attainment and maintenance area which are the pollutants of concern for this study. Under FAA Order 1050.1E, significant air quality impacts would occur if an action would exceed one or more of the NAAQS for any of the time periods analyzed.[2] Section 176(c) of the Clean Air Act (CAA) requires that Federal actions conform to the appropriate SIP in order to attain the CAA's air quality goals. Section 176(c) states: "No department, agency, or instrumentality of the Federal Government shall engage in, support in any way or provide financial assistance for, license or permit, or approve any activity which does not conform to an implementation plan." A conformity determination is not required if the emissions caused by a Federal action would be less than *de minimis* levels established in regulations issued by EPA.[3]

Table 1 EPA Designated Attainment Status and Affiliated *De minimis* Levels

Airport	**Pollutant**	**Classification**	***De minimis* Levels (tons per year)**
Worcester Regional Airport	8-hour Ozone – 2008 Standard	Attainment	N/A
	8-hour Ozone-1997 Standard	Non-attainment	NOx 100 VOC 50
	CO	Maintenance	100
	SO2, NOx, PM_{10}/$PM_{2.5}$, and Lead	Attainment	N/A

Notes:
1. *de minimis* levels from U.S. EPA, General Conformity de minimis levels [40 CFR Section 93.153(b) (1) (2)]
2. All other attainment classifications from US EPA Green book [http://www.epa.gov/air/oaqps/greenbk/index.html]

5. ENVIRONMENTAL CONSEQUENCES

5.1 Noise

5.1.1 Aircraft Operations

The Area Equivalent Method (AEM) is a screening procedure used to simplify the assessment step in determining the need for further analysis with the Integrated Noise Model (INM) as part of Environmental Assessments and Impact Statements (EA/EIS) and Federal Aviation Regulations (FAR) Part 150 studies. AEM is a mathematical procedure that provides an estimated change in noise contour area for an airport given the types of aircraft and the number of operations for each aircraft. The purpose of the AEM is to show change in airport annual average day DNL noise contour area relative to a change in aircraft mix and number of operations. The latest version of the AEM (Version 7.0c) was used for this analysis.

The AEM produces noise contour areas (in square miles) for the DNL 65 dB noise level and the purpose of AEM is to screen for significant impact within the DNL 65 dB contour area. The AEM is used to develop insight into the potential increase or decrease of noise resulting from a change in aircraft operations. In their report dated August 1992, the Federal Interagency Committee on Noise (FICON) recommended the use of AEM as a screening tool to determine the need for additional environmental noise analysis. FICON, which was composed of representatives from several Federal Government agencies, was chartered to review specific elements of federal agency procedures for the assessment of airport noise impacts and to make appropriate recommendations. In their report, FICON recommend the use of screening to determine the extent of noise analysis required. FICON also established an increase of 17 percent or more in contour area as the threshold of significance for AEM within a DNL 65 dB contour. A 17 percent increase indicates that the proposed action could result in a DNL 1.5 dB or greater increase at a noise sensitive area and that further analysis is required. Conversely, if the screening process shows less than a 17 percent increase, it may be concluded that there are no significant impacts on a noise sensitive area.

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[2] FAA Order 1050.1E, Chg.1, App. A, sec. 2.3.

[3] *Code of Federal Regulations*, title 40, sec. 93.153(b).

The AEM model input consists of aircraft fleet mix data and annual day and night operations. The aircraft fleet mix and day night breakdown was developed from the FAA Traffic Flow Management System Counts for June 2013 through May 2014 and data provided by Massport. These operations were then scaled to the reported totals from the FAA Operational Network tower counts for the same 12 month period.

It is likely that aircraft already using the airport (therefore included in the baseline operations) would use the proposed hangar. However, for the purpose of this analysis we have assumed a worst case condition using an Airbus A320-232 which would be new to the airport. Under this condition, the annual operations would increase by 416 operations (or 208 landing- takeoff operations (LTO's)), assuming the new operations would equal to four landings and four takeoffs per week. As noted above, this is compared to the 2013/14 level of over 31,000 annual operations and over 53,000 annual operations in 2002.

The Area Equivalent Method noise modeling for the Proposed Action project site indicates that there would be a very minor increase in the DNL 65 dB contour (1.2 percent). The 1.2 percent increase is well below the 17 percent threshold increase in contour area and therefore does not result in a significant impact due to proposed action. Table 2 presents the increase in size of the DNL 65 dB contour and the percent change in area due to the proposed action.

Table 2 Worcester Regional Airport Phase 1 Hangar AEM Results

DNL (dBA)	No Action Area (Sq. Mi.)	Proposed Action Area (Sq. Mi.)	Change in Area (Sq. Mi.)
65	0.3	0.3	1.2%
60	0.7	0.7	1.4%

Source: AEM Results, HMMH 2014

Occasional maintenance runups will occur on the ramp associated with the proposed hangar, these will be short in duration and conducted primarily during the day. There are no noise-sensitive areas immediately adjacent to the project site. The closest residential area is located 1,100 feet to the north/northeast of the project site and is separated from the project site by a roadway, a forested area and grade differential between the elevated heights of the airfield compared to the residences. The location of the building will also act as a sound barrier and will help to shield the closest residences to the north and northeast.

5.1.2 Construction Activities

Overall, the construction phase of this project would be expected to create minor and temporary impacts in the immediate project area. These impacts would be short-term in nature, lasting for the duration of construction activities. Temporary contractor staging areas would be required throughout the construction process to store and assemble construction equipment and materials. Noise from the operation of construction equipment would be expected, but noise impacts would be generally localized to the vicinity of the construction site. Earthmoving equipment, pavers, and other construction equipment and vehicles will create localized increases in noise levels. These temporary noise impacts should not disrupt normal airport operations.

5.1.3 Mitigation Measures

The Proposed Action is not a capacity enhancement project and would not appreciably change the noise levels at Worcester Regional Airport. Based on the analysis of the potential effects of aircraft operations and temporary construction activities on the current noise setting, no significant impacts would be anticipated. Therefore mitigation would not be required. However, construction would be limited to typical daytime hours (Monday through Friday, 7am to 7pm), unless exigent schedule demands requires work on weekends.

Other typical construction-phase noise mitigation measures would be implemented such as:

- Maintain mufflers on construction equipment
- Keep truck idling to a minimum in accordance with MA anti-idling regulations
- Fit any air-powered equipment with pneumatic exhaust silencers
- Limit nighttime construction

It is recommended that any maintenance runups be conducted with the aircraft nose facing to the north or northeast whenever possible to reduce noise levels off airport property.

5.1.4 No Action Alternative

Under the No Action alternative, implementation of the Phase I airfield improvements would not occur. Accordingly, there would be no change to the affected environment described in Section 4 above. No mitigation measures would be required or proposed.

5.2 Air Quality

The air quality analysis estimated net changes in emissions due to the proposed hangar and associated improvements at ORH. Emissions associated with each aircraft operation, and associated ground support operations and on-road surface vehicle trips were estimated using the latest FAA's EDMS model.

The FAA has designated the EDMS to be the "preferred" guideline model for use in civil airports and military air bases. This analysis used the most up-to-date version, 5.1.4.1, which was released in August 2013. For on-road vehicle emissions factors, EDMS 5.1.4.1 internally uses MOBILE6.2. MOBILE6.2 has recently been replaced by the EPA MOVES model for the computation of emission factors. To date, MOVES has not been incorporated into EDMS and the on-road emissions are expected to be minimal, therefore, for this screening analysis the internal emission factors provided by MOBILE6.2 in EDMS were used.

EDMS uses EPA databases, methodology, and algorithms to calculate emissions for CO, PM_{10}, and $PM_{2.5}$, various sulfur oxides (SOx), VOCs, and oxides of nitrogen (NOx) from aircraft, ground support equipment, parking lots, roadways, and stationary sources.

5.2.1 Aircraft Operations

Although the Airbus A320-232 is not a regular user of ORH at this time, existing airfield facilities can easily accommodate regular A-320 operations. The A-320 is one of two aircraft in the JetBlue fleet and a likely candidate for increasing future JetBlue passenger capacity at ORH. Currently, the Embraer 190 is the JetBlue aircraft in use for air carrier service at ORH. The Embraer 190 with the CF34-10E engine has slightly lower emissions compared to the A320-232, therefore, the A320-232 was assumed for this analysis since it is worst case.

Projected operations data (Table 3) were input into EDMS to estimate the annual emissions associated with each aircraft operation. EDMS calculates aircraft emissions affiliated with taxi-out, takeoff, climb-out, approach, landing, and taxi-in for each operation. Emissions are estimated using an internal database of emissions factors based on aircraft type, associated engine type, and time spent in each above of the mentioned modes. For this analysis, EDMS default factors were used for each mode to calculate emissions associated with each operation.

Table 3 New Annual Operations (Landing and Takeoffs) Predicted at ORH due to Proposed Action

Aircraft Name	EDMS Database Equivalents		Forecast Operations (LTO's)
	Aircraft Type	Engine	
A320-232	A320-232	V2527-A5	208

Source: Massport, HMMH Analysis
Note: 1 LTO = 2 Operations (1 Landing & 1 Takeoff)

5.2.2 Auxiliary Power Unit and Ground Support Equipment

In addition to aircraft emissions, EDMS also estimates emissions from the ancillary equipment associated with aircraft operations; e.g., auxiliary power units (APUs) that provide electrical power to the aircraft while the aircraft's propulsion engines are not operating, and ground support equipment (GSE), such as luggage tractors, fuel trucks, catering trucks, lavatory trucks, service trucks, and ground power units. It is likely that several of the GSE types would not be used at the maintenance hangar but they were left in the analysis for completeness and to ensure a conservative analysis.

5.2.3 On-road Vehicle Operations

Indirect emissions associated with employee vehicle miles traveling to and from the airport hangar on the access road were also estimated. Conservatively, it was assumed that the hangar would operate 24 hours per day, seven days per week with multiple shifts. Assuming 30 vehicle trips (one-way) per shift, and three shifts per day during a seven day work week; a total of 32,760 one way trips would be conducted per year. The distance traveled was based on the distance a vehicle would travel within the ORH property boundary to and from the parking area (i.e. the distance from Airport Drive to the hangar parking).

Table 4 presents the distance traveled along with the annual traffic volume associated with the two aircraft types.

Table 4 Travel Distance and Total Number of Trips per year at ORH

Airport	One-Way Distance (feet)	Total Number of Trips Per Year
ORH	2388	32,760

**Assumes 30 vehicle trips per shift per day (one-way) to and from the Hangar.

EDMS estimates vehicle emissions using EPA MOBILE6.2 emission factors which are incorporated in the model for various vehicle speeds using default fleet mixes. For this analysis, a vehicle speed of 30 miles per hour was assumed. The total roadway emissions are then internally estimated in EDMS by multiplying the MOBILE6.2 emission factor for each pollutant at 30 miles per hour by the total round trip distance traveled and annual volumes.

The new parking lot associated with the hangar is also evaluated based on the number of vehicle trips per day assuming they all park for some length of time.

5.2.4 Air Quality Results

Table 5 presents the net emissions change (e.g. the addition of the A320-232 operations). The table presents both the pollutants of concern and the pollutants in attainment.

Table 5 includes the corresponding *de minimis* levels for the pollutants of concern. The analysis shows that the net emission changes from activities associated with the proposed action are well below the *de minimis* levels for each pollutant. Therefore, under the Clean Air Act and EPA General Conformity regulations, the net change in emissions associated with the proposed replacement aircraft are considered insignificant, and no further analysis is required.

Table 5 Net Change due to Proposed Hangar Development (tons/year)

Source	CO	VOC	NOx	SOx	PM-10	PM-2.5
Aircraft	1.26	0.08	2.00	0.22	0.04	0.04
GSE	1.15	0.04	0.12	0.00	0.00	0.00
APUs	0.02	0.00	0.09	0.01	0.01	0.01
Parking	0.18	0.02	0.01	0.00	0.00	0.00
Roadways	0.29	0.02	0.02	0.00	0.00	0.00
Total	2.90	0.15	2.25	0.23	0.05	0.050
De minimis	100	50	100	N/A	N/A	N/A

Source: HMMH 2014

The Proposed Action will conform to the SIP and will not cause or contribute to any new NAAQS violations or delay the timely attainment of a NAAQS.

5.2.5 Construction

Construction of the Project will result in a temporary increase in emissions of some pollutants (e.g. PM_{10}/$PM_{2.5}$ and nitrogen oxides) due to the use of construction equipment powered by diesel fuel along with fugitive emissions from earth-moving equipment. However, emissions from construction activities are estimated to be temporary and are not expected to be a significant source of air quality emissions, therefore, NAAQS violations would not be anticipated. Massport requires tenants to commit to the reduction of construction-related diesel emissions through the Clean Air Construction Initiative and all tenant projects must meet this commitment. Contractors are required to retrofit their heavy equipment with advanced pollution control devices such as oxidation catalysts and low particulate filters during construction of all projects on Massport property.

To minimize the generation of dust during dry and windy conditions, water will be applied to areas of exposed soil to prevent wind-borne transport of fine grained sediment.

5.2.6 Mitigation Measures

The Proposed Action is not a capacity project and would not appreciably increase the air quality levels at Worcester Regional Airport. Based on the analysis of the potential effects of construction activities and aircraft operations on the current setting, no violation of the NAAQS would occur or any changes to the SIP are necessary. Therefore mitigation would not be required. However, construction would be limited to typical daytime hours (Monday through Friday, 7am to 7pm), unless exigent schedule demands requires work on weekends. Steps should be taken to reduce fugitive dust emissions during construction activities.

5.2.7 No Action Alternative

Under the No Action alternative, implementation of the Phase I airfield improvements would not occur. Accordingly, there would be no change to the affected environment described in Section 4 above. No mitigation measures would be required or proposed.

APPENDIX A. AEM INPUT AND RESULTS

Federal Aviation Administration
Office of Environment and Energy
ww.faa.gov/about/office_org/headquarters_offices/apl/research/models/aem_model/

Area Equivalent Method (AEM) Version 7.0c

Airport Name/Code:	ORH

DNL (dBA)	Baseline Area (Sq. Mi.)	Alternative Area (Sq. Mi.)	Change in Area (Sq. Mi.)
65	0.3	0.3	1.2%
60	0.7	0.7	1.4%
55	1.7	1.7	1.6%
50	4.0	4.1	1.7%

	No Action Case Annual Average Day		Proposed Action Case Annual Average Day	
Aircraft Type	Daytime LTO Cycles	Nighttime LTO Cycles	Daytime LTO Cycles	Nighttime LTO Cycles
74720B	0.02	0.00	0.02	0.00
A319-131	1.20	0.20	1.20	0.20
A320-232			0.57	
BEC58P	3.44	0.19	3.44	0.19
C130	0.03	0.01	0.03	0.01
CIT3	0.26	0.01	0.26	0.01
CL600	0.85	0.05	0.85	0.05
CL601	0.44	0.03	0.44	0.03
CNA172	3.46	0.18	3.46	0.18
CNA206	1.37	0.09	1.37	0.09
CNA182	1.47	0.08	1.47	0.08
CNA208	1.16	0.07	1.16	0.07
CNA441	1.24	0.07	1.24	0.07
CNA500	0.73	0.04	0.73	0.04
CNA510	0.29	0.02	0.29	0.02
CNA525C	0.63	0.04	0.63	0.04
CNA55B	0.33	0.02	0.33	0.02
CNA560E	0.40	0.04	0.40	0.04
CNA560XL	0.64	0.06	0.64	0.06
CNA680	0.96	0.06	0.96	0.06
CNA750	0.15	0.02	0.15	0.02
DHC6	0.01	0.00	0.01	0.00
DO228	2.96	0.15	2.96	0.15

ECLIPSE500	0.07	0.00	0.07	0.00
EMB145	0.05	0.00	0.05	0.00
F10062	0.95	0.05	0.95	0.05
GASEPF	0.45	0.02	0.45	0.02
GASEPV	8.40	0.44	8.40	0.44
GIIB	0.08	0.00	0.08	0.00
GIV	0.64	0.03	0.64	0.03
GV	0.65	0.03	0.65	0.03
IA1125	0.53	0.03	0.53	0.03
LEAR25	0.17	0.01	0.17	0.01
LEAR35	2.74	0.19	2.74	0.19
MU3001	0.39	0.03	0.39	0.03
PA28	2.28	0.12	2.28	0.12
PA30	0.04	0.00	0.04	0.00
PA31	0.36	0.02	0.36	0.02
PA42	0.06	0.00	0.06	0.00
SF340	0.25	0.07	0.25	0.07
F16A	0.03	0.01	0.03	0.01
Total LTO's	40.17	2.50	40.74	2.50